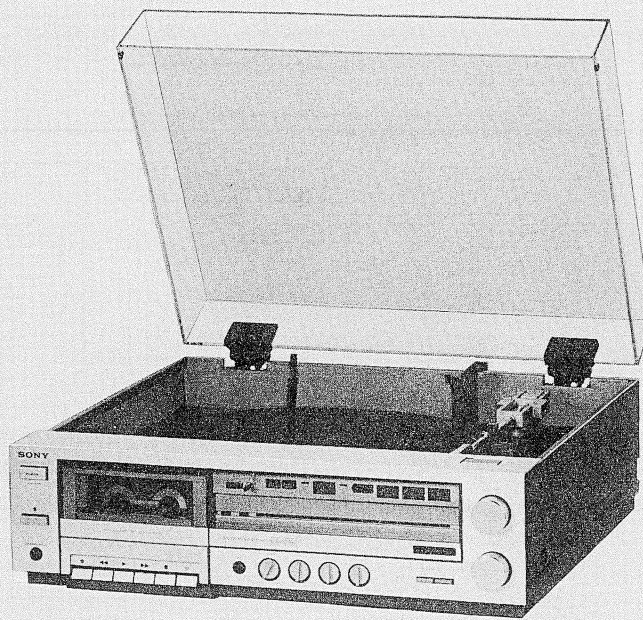


JJ-505

US Model



Note:

Refer to separate service manuals for the TTS-83 Record Player only.

STEREO MUSIC SYSTEM

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8-ohm loads, both channels driven from 90 Hz to 15,000 Hz; rated 12 watts per channel minimum RMS power, with no more than 2% total harmonic distortion.

OTHER SPECIFICATIONS

Amplifier section

Circuit system	SEPP OCL power amplifier
Inputs	MIC: sensitivity 1.0 mV, for low impedance microphones AUX: sensitivity 250 mV at load impedance 50 kilohms
Outputs	REC OUT: level 250 mV at load impedance 10 kilohms SPEAKER: for 8-ohm speakers HEADPHONES: for headphones of 8 ohms or more
Tone controls	BASS: ± 10 dB (100 Hz) TREBLE: ± 10 dB (10 kHz)

FM tuner section

Tuning range	87.5 – 108 MHz
Antenna terminals	300-ohm balanced
Sensitivity	3.0 μ V (S/N = 30 dB)
Harmonic distortion	Mono: 0.5% (at 1 kHz) Stereo: 1.0% (at 1 kHz)
Stereo separation	Better than 35 dB
Selectivity	50 dB

AM tuner section

Tuning range	530 – 1,610 kHz
Antenna	Ferrite-bar antenna External antenna terminal
Usable sensitivity	48 dB/m, ferrite-bar antenna (at 1,000 kHz) 100 μ V, external antenna (at 1,000 kHz)
Signal-to-noise ratio	55 dB
Harmonic distortion	0.5 %

Record player section

Motor	DC servo-controlled
Drive system	Belt drive, fully automatic player
Speed	33 $\frac{1}{3}$, 45 rpm
Wow and flutter	0.08% WRMS

— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



MICROFILM

Tape Transport Mechanism

MF-417

SONY®

SERVICE MANUAL

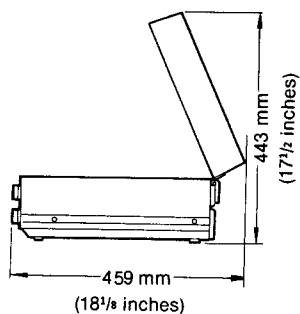
Cartridge VL-38GSA (moving magnet type)
Tracking force 2.5 g $\pm$ 0.5 g (2.5 g recommended)
Stylus ND-138G (Conical, 0.5 mil diamond)

Cassette deck section

Recording system 4-track 2-channel stereo
Fast-forward and rewind time Approx. 90 sec. (with C-60 cassette)
Bias frequency 105 kHz
Signal-to-noise ratio With type IV cassette (Sony METALLIC)
58 dB at peak level
Total harmonic distortion 1.0% (with Sony METALLIC cassette)
Frequency response • With type IV cassette (Sony METALLIC)
20 - 17,000 Hz
• With type I cassette (Sony HFX)
20 - 12,500 Hz
Wow and flutter 0.07% WRMS

General

Power requirements 120 V ac, 60 Hz
Power consumption 45 watts
Dimensions Approx. 430 $\times$ 192 $\times$ 423 mm (w/h/d)
(17 $\times$ 7 $\frac{5}{8}$ $\times$ 16 $\frac{3}{4}$ inches)
including projecting parts and controls



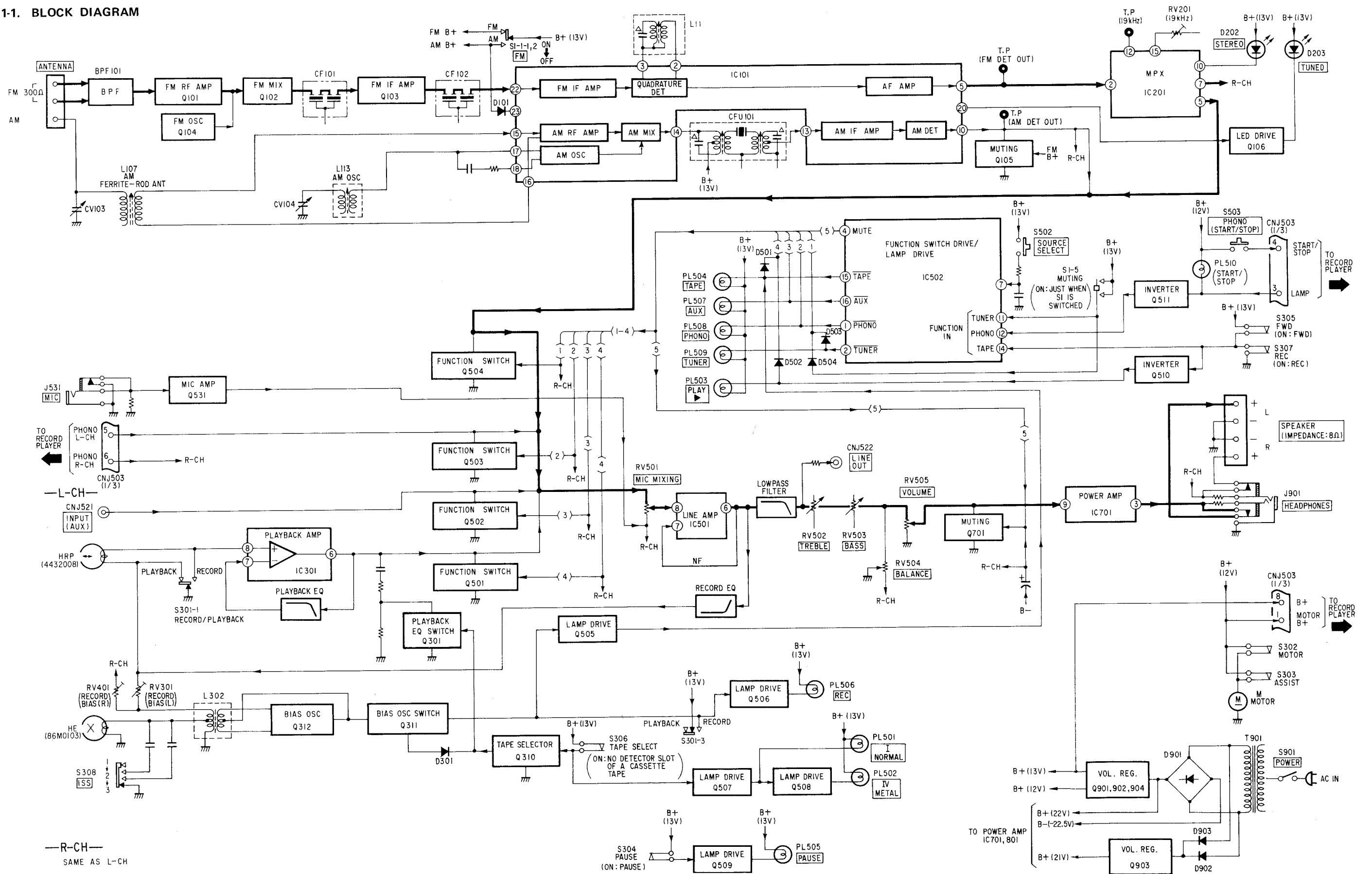
Weight Approx. 9.7 kg (21 lb 7 oz) net
Approx. 11.4 kg (25 lb 3 oz) in shipping carton

0 dB = 0.775 V (AF)
0 dB = 1 μ V
0 dB/m = 1 μ V/m

} (RF)

SECTION 1 OUTLINE

1-1. BLOCK DIAGRAM



1-2. DESCRIPTION ON THE NEW DECK MECHANISM

This set uses a new deck mechanism which is mostly driven by a massive mechanical parts, i.e., levers, springs and so on. A brief description is outlined below.

1-3-1. New Functions

a) Assist Operation:

a-1. Forward Operation

[Forward button depressed → Forward assist operation → Forward mechanism locks → Forward assist operation releases]

In forward mode, the deck mechanism does not reforward nor become in record mode.

a-2. Fast-forward Operation

[Fast-forward button depressed → Fast-forward assist operation → Fast-forward mechanism locks → Fast-forward assist operation releases]

a-3. Rewind Operation

[Rewind button depressed → Rewind assist operation → Rewind mechanism locks → Rewind assist operation releases]

a-4. Record Operation

In this mechanism, one-button record mode function is used.

When the record button is depressed, the record-linkage plate on the record lever pushes the forward lever.

[Record button depressed → Record assist operation → Record button locks → Record assist operation releases]

a-5. Stop Operation

[Stop button depressed → Stop assist operation (in conjunction with record, fast-forward, rewind and forward modes) → Stop assist operation releases]

a-6. Pause Operation

Pause mode is made only in forward or record mode like in other deck mechanism.

[Pause button depressed → Pause assist operation (pinch roller detouches from capstan and forward idler releases from forward mechanism) → Pause mechanism locks]

When the pause button is depressed again, the pause mode releases and the tape travels in forward or record mode.

a-7. Assist Operation

The assist functions are newly made into the mechanism design to make each mode securely. During one assist mechanism is operating for a specific mode selected, other assist mechanisms for other modes are not operative. During one assist operation is working, it is not released even when the ejection button is depressed.

b) Tape Ejection:

The tape in operation is ejected in either mode of record, fast-forward, rewind or forward when the ejection button is depressed.

1-3-2. Button Operation

a) Single-button Operation:

a-1. Each button should be fully depressed including overstroke right after the assist operation, and it returns to the stationally position when finger is released. That is, each button is not left resessed when one mode is made. Like other decks, the record button can be depressed only when a tape cassette with a miserasure-preventing claw in it is being used.

a-2. Record and forward buttons can not be pressed again after the assist mechanism had operated and the button had returned to the stationally position. Other buttons, i.e., fast-forward, rewind, pause and stop, can be depressed any times even after the respective button had returned to the stationally position with a cyclic mechanism sound each time a button is depressed and released.

a-3. The timing when a forward mode is being made is as following sequence.

- The brake detouches from the supply-reel spindle and idler gear.
- The pinch roller touches the capstan.
- The forward idler touches the take-up reel spindle.

Those from a to b above should be in that sequence or should occur at the same time.

a-4. When the take-up reel spindle stops rotating in forward and record modes, the forward idler and the gear part of the take-up reel spindle should still be turning, and the mechanism should shut off in less than six (6) seconds after the stoppage of the take-up reel spindle.

a-5. When the take-up reel spindle or the supply-reel spindle stops rotating in fast-forward or rewind mode respectively, the FR (Fast-rewind) idler and the respective reel spindle should stop turning, and the FR pulley should be turning. The mechanism should also shut off within six (6) seconds after the stoppage of the reel spindle rotations.

b) Double-button Operation:

b-1. When a present mode is being changed by operating a next button, any one next mode as charted below is obtained.

1st ON	Record	Rewind	Forward	Fast-Forward	Stop	Pause
2nd ON	Record	Rewind	Cannot be depressed	Record	Record	Pause
Rewind	Rewind	Rewind	Rewind	Rewind	Rewind	Rewind
Forward	Cannot be depressed	Forward	Forward	Forward	Forward	Pause
Fast-Forward	Fast-Forward	Fast-Forward	Fast-Forward	Fast-Forward	Fast-Forward	Fast-Forward
Stop	Stop	Stop	Stop	Stop	Stop	Pause/Stop
Pause	Pause	Rewind	Pause	Fast-Forward	Pause/Stop	Pause/Stop

b-2. When the pause button is depressed and locked during forward or record mode, the tape should stop travelling. The timing of this pause mode should be in the following sequence from a to b or a and b should occur at the same time.

a. Forward idler detouches from the take-up reel spindle.

b. Pinch roller detouches from the capstan.

As can be understood from the chart, from rewind to pause, and from fast-forward to pause become or remain in rewind or fast-forward mode respectively and no shut-off operation is engaged.

c) Simultaneous Double-button Depressions:

c-1. Combinations of fast-forward/forward, rewind/forward, fast-forward/record and rewind/record buttons should be meaningless in the simultaneous button depressions and they do no lock.

c-2. Simultaneous forward/record button depressions should lock the buttons, i.e., the mode becomes in record. This refers to the single-button record mode.

c-3. Simultaneous button depressions in combination with stop button, except the pause button, should become in stop mode.

c-4. Fast-forward and rewind buttons can be locked simultaneously and should become in rewind mode.

d) Ejection Lever:

Each function mode except the pause engagement should become in the stop mode at the depression of the ejection lever. It is normal that the pause mechanism is not released when it is engaged or "pause on" mode.

When it is necessary to release the "pause on" mode, the pause button should be depressed once again.

e) General:

e-1. General notes should apply to this deck mechanism.

e-2. Each function button should operate from a slow lever movement of about two (2) seconds to a snap-wise fast motion with a finger attached on the button and fully depressing.

e-3. In the initiation of the record mode, record-detection leaf switch (S307) should turn on prior to the forward leaf switch (S305).

e-4. Pause leaf switch (S304) should turn on in pause mode.

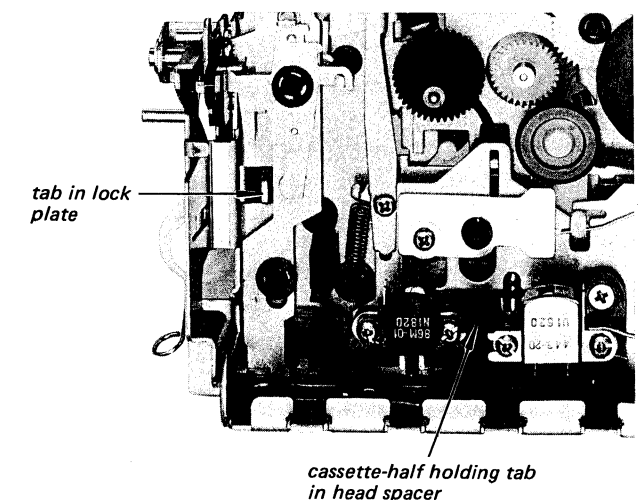
Motor leaf switch (S302) should turn on in conjunction with the motion of the brake plate in all modes except for pause and stop.

Assist or power leaf switch (S303) should turn on in conjunction with each button lever movement.

e-5. When the 12 V motor voltage is turned off after once the mechanism had put in forward or record mode, i.e., the head base is raised, the mechanism maintains the locked condition. When a tape cassette had been put in the cassette compartment in this condition, the cassette cannot be taken out of it.

To take out a tape cassette, reapply the 12 V voltage and put the mechanism into stop mode. Alternative method is to push the tab in the lock plate outward which protruding from front and seen just to the lower left of the left edge of the cassette half to make a shut-off condition.

Otherwise, defective parts may be made to the erase and record/playback heads, tape guides in the heads, pinch roller, tape-select switch, cassette holders or the cassette half and the tape itself.

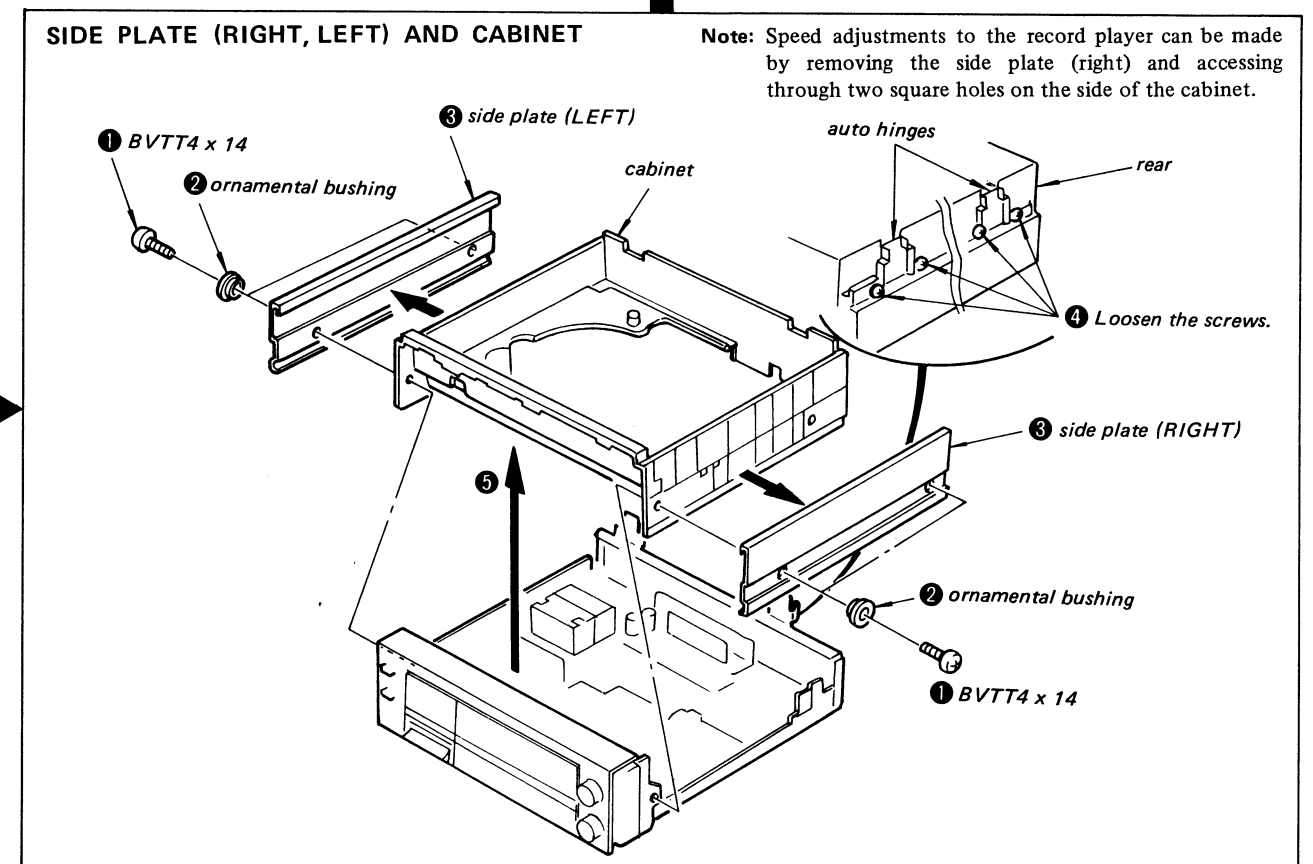
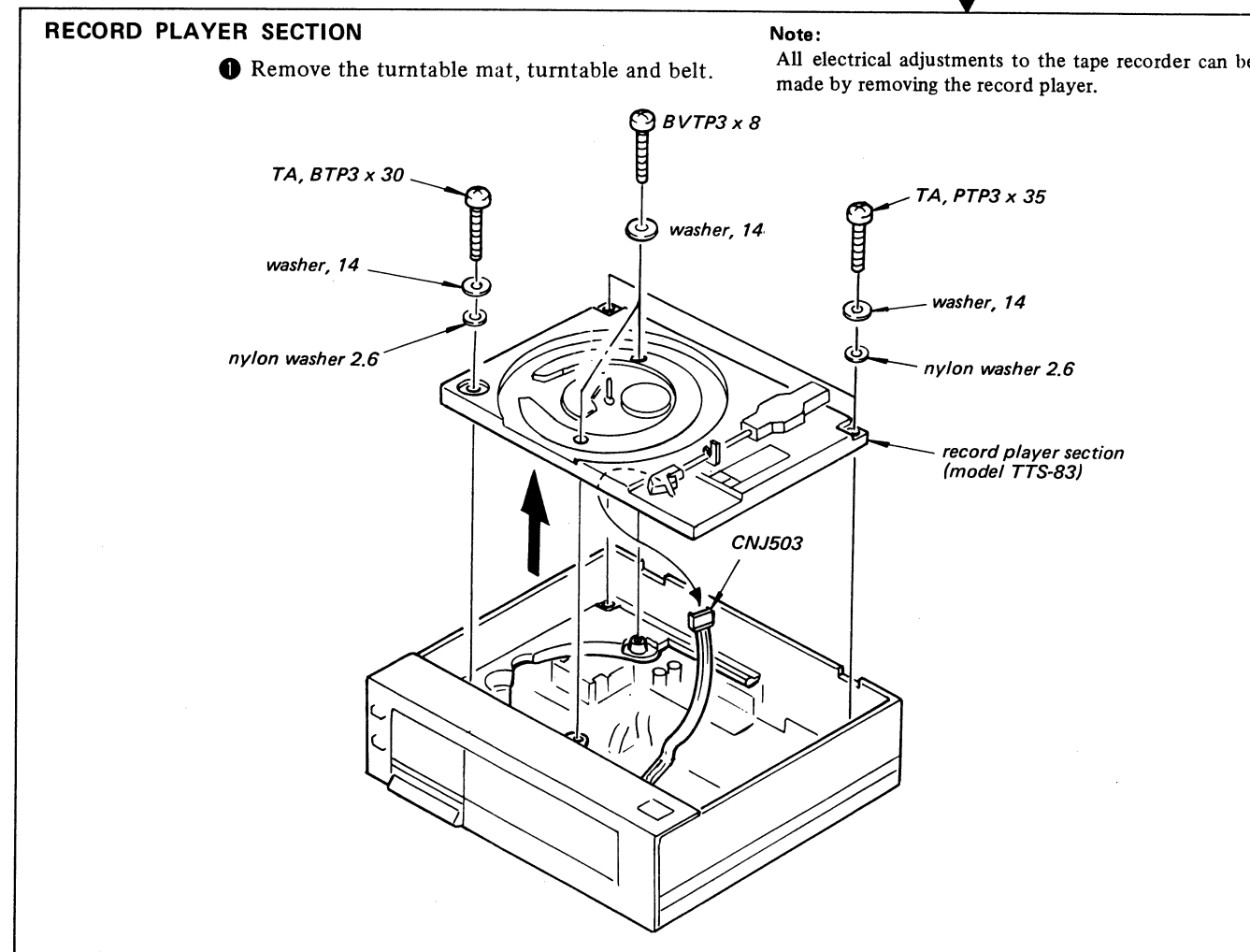
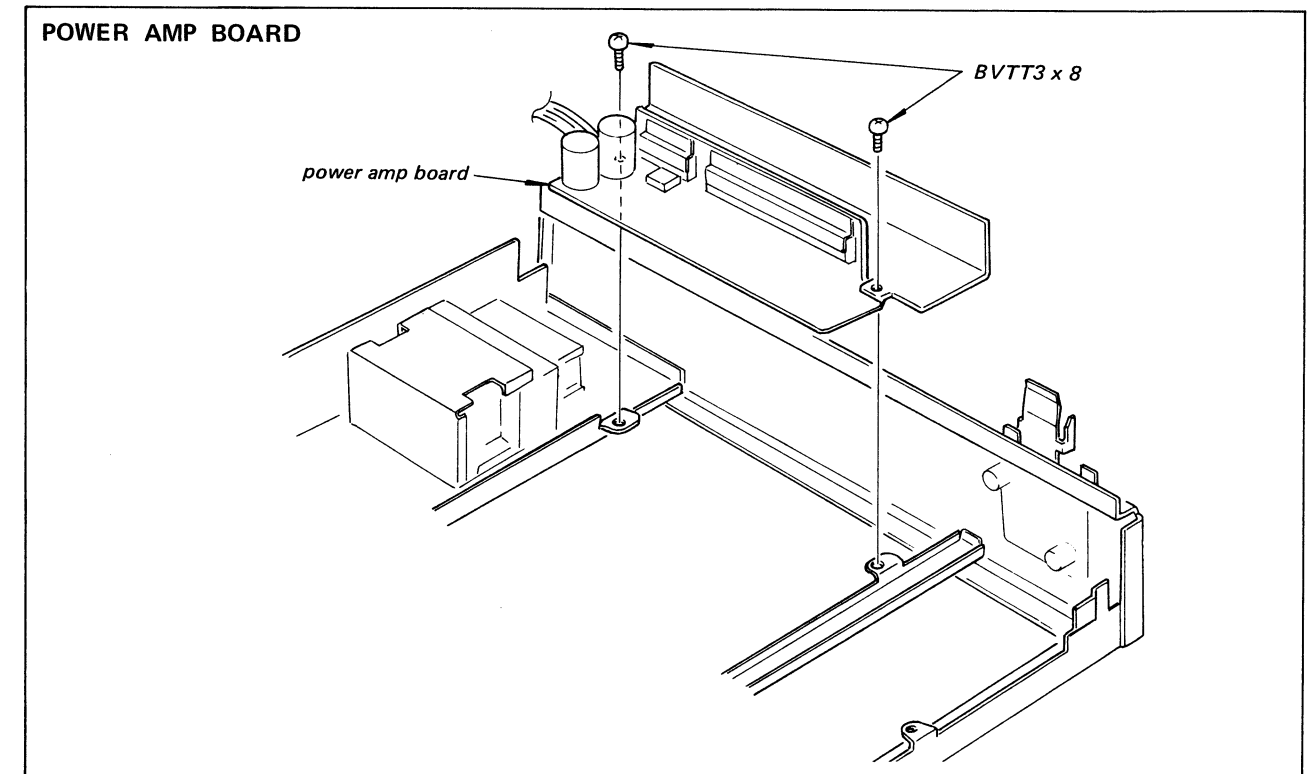
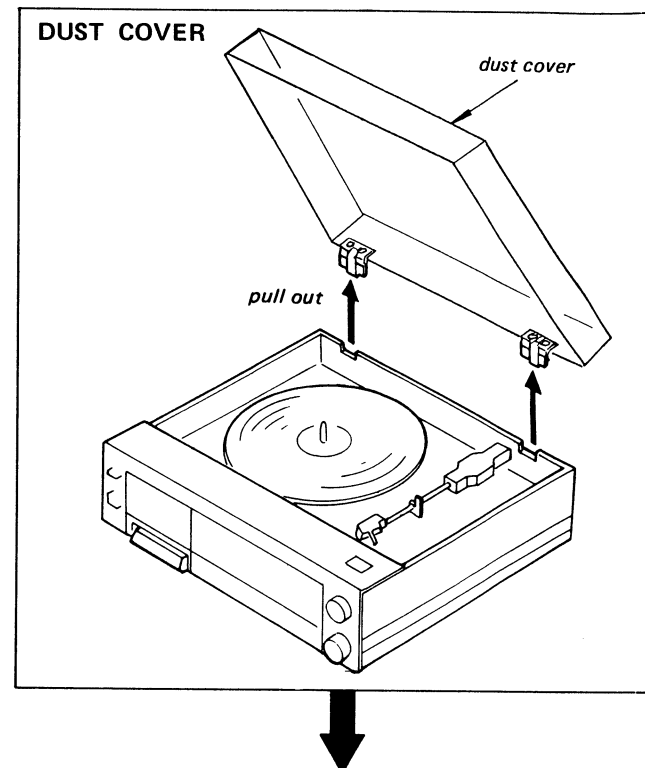


SECTION 2 DISASSEMBLY

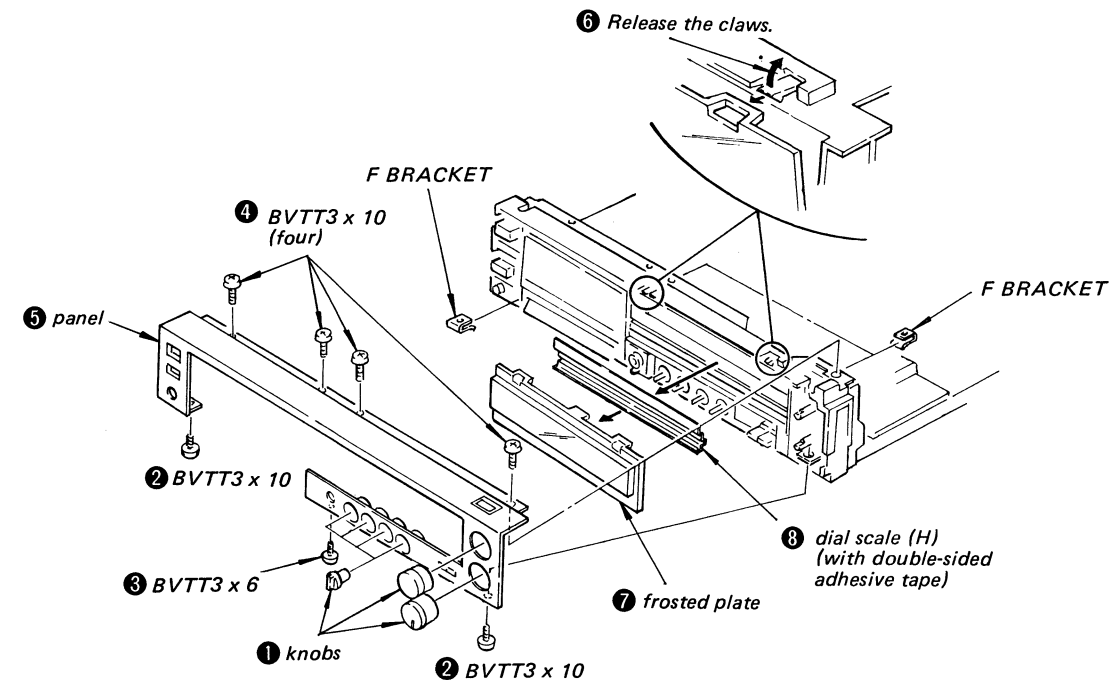
2-1. REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

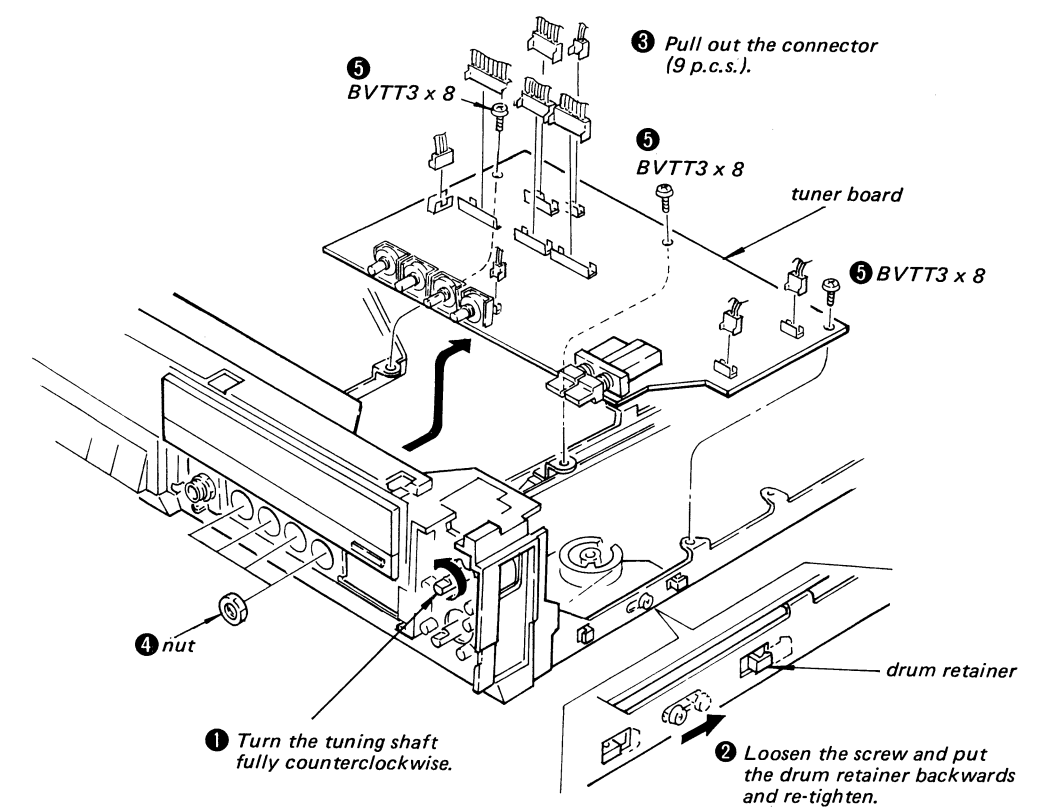
- Speed adjustments to the record player can be made by removing the side plate (right) and accessing through two square holes on the side of the cabinet.
- All electrical adjustments to the tape recorder can be made by removing the record player.



PANEL, FROSTED PLATE AND DIAL SCALE

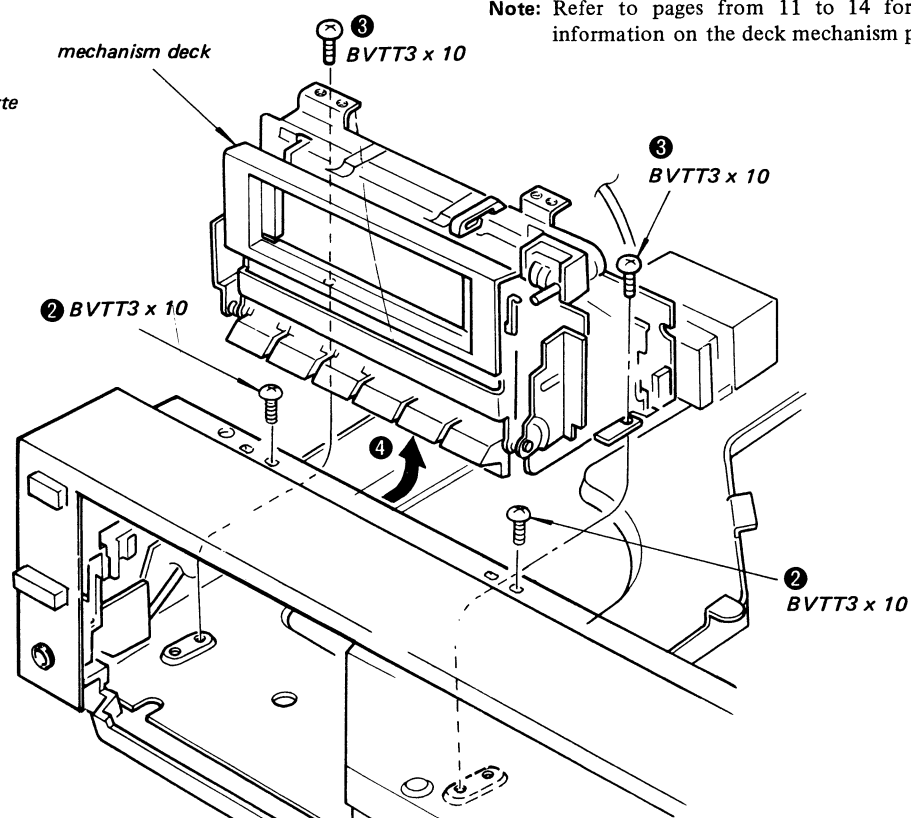


TUNER BOARD



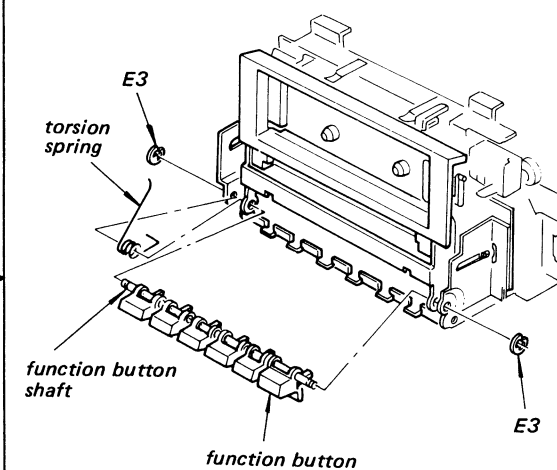
MECHANISM DECK

- ① Remove the cassette window.

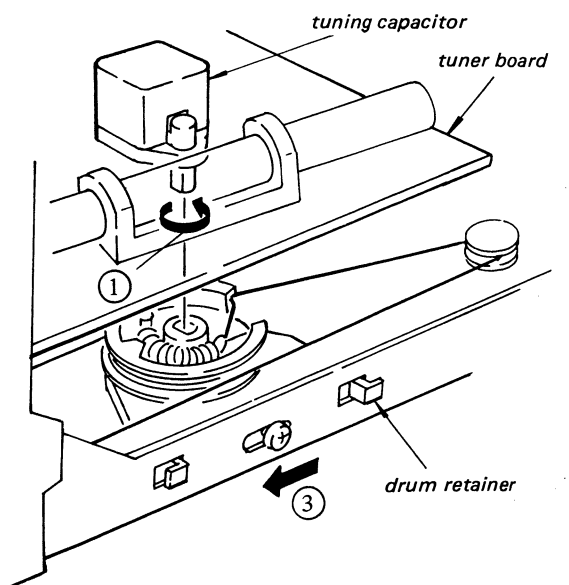


Note: Refer to pages from 11 to 14 for more information on the deck mechanism proper.

FUNCTION BUTTON



TUNER BOARD INSTALLATION



Tuner Board Installation

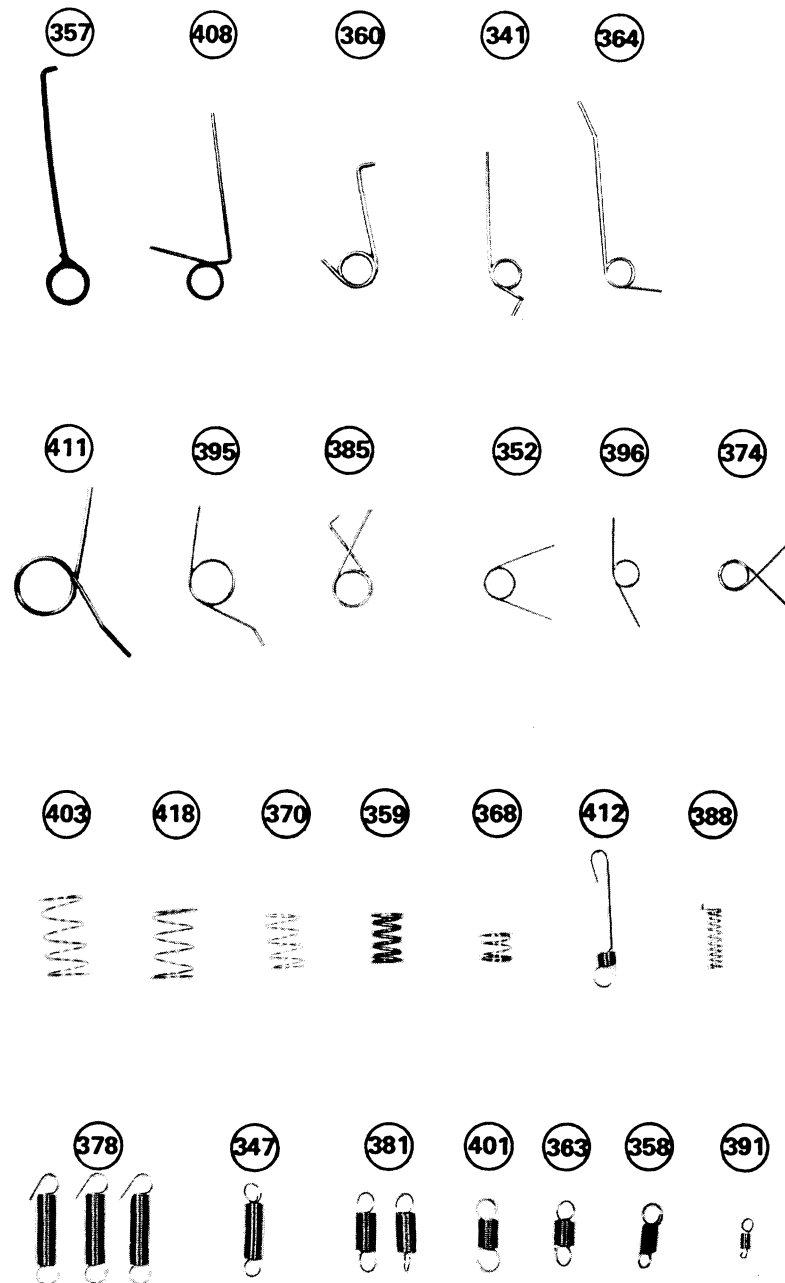
- ① Confirm that the shaft of tuning capacitor is turned fully in the direction of arrow (MIN).
- ② Install the tuner board.
- ③ Loosen the screw and tighten it pushing the drum retainer in the direction of arrow.

2-2. MECHANISM DECK

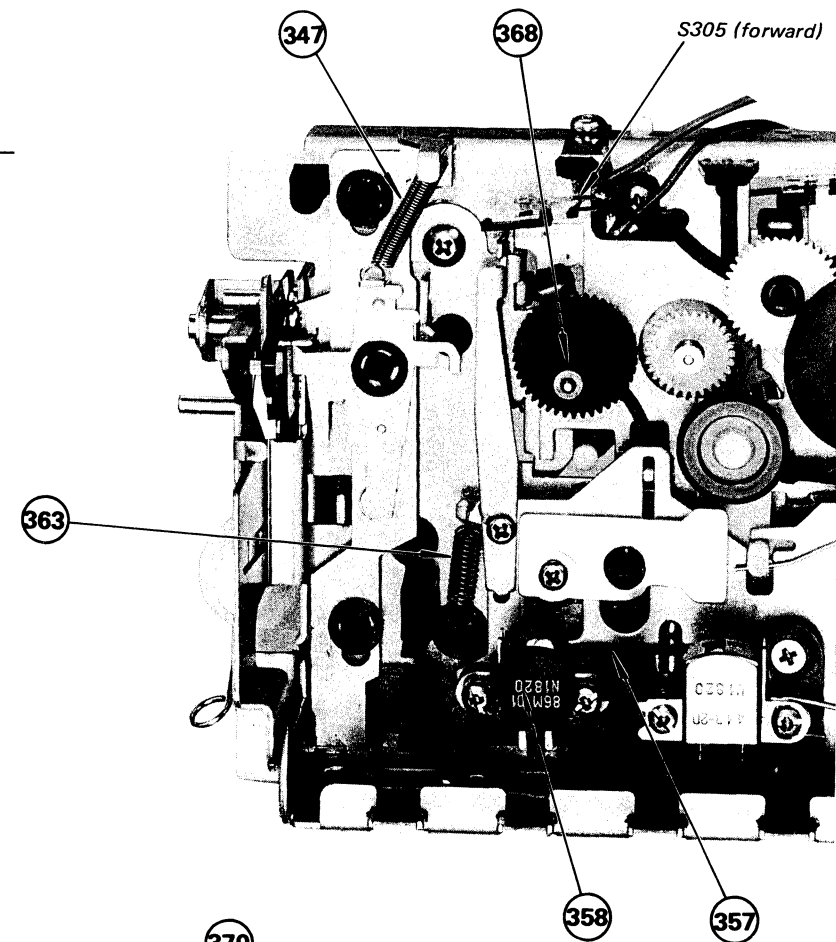
Note: Numbers coincide with those of the exploded views and parts list.

When reassembling the mechanism deck, refer to the following photos and exploded views together. Especially take note on various springs when the mechanism is completely disassembled. Care should be taken when removing the speed nuts from the molded protrusions of the chassis, otherwise these protrusions may be damaged causing a complete replacement of the chassis assembly. When re-mounting these speed nuts, displace them from original positions for a secure mounting.

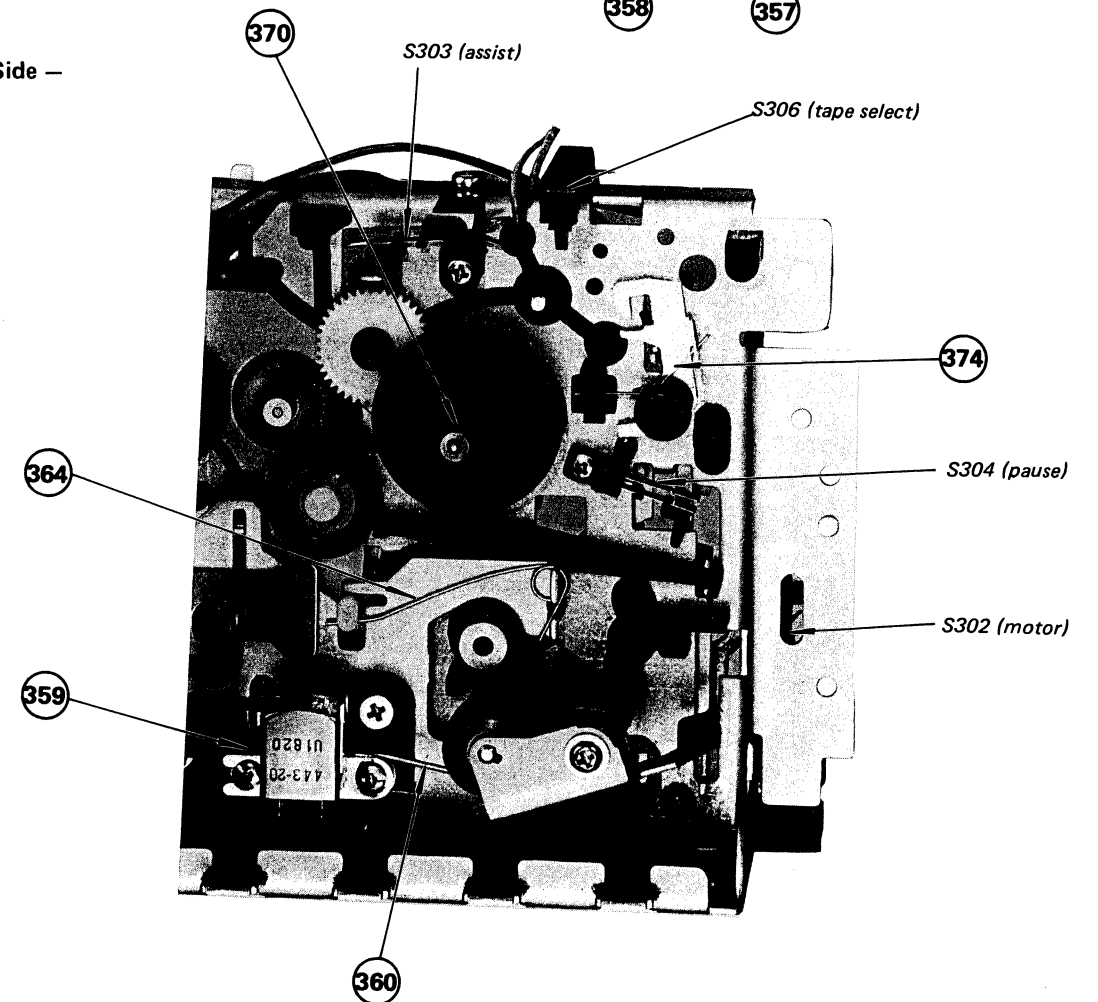
• Torsion, Tension and Compression Springs



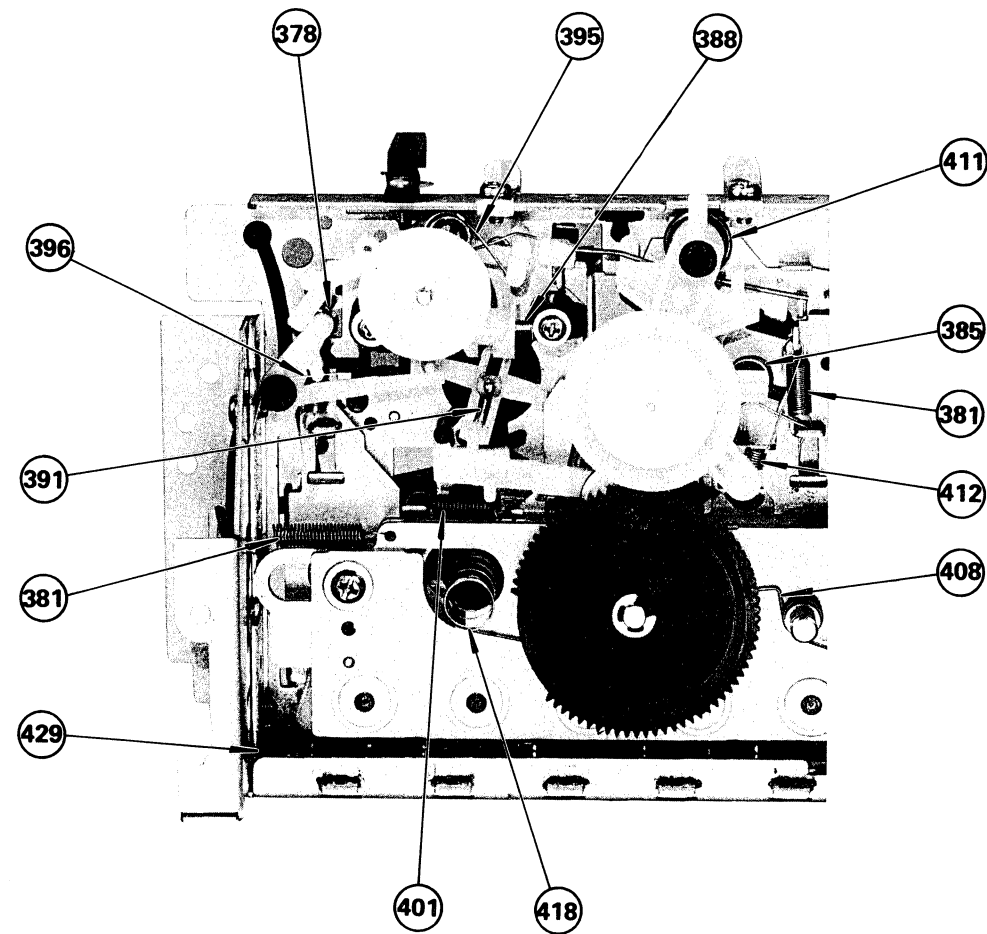
• FRONT — Left Side —



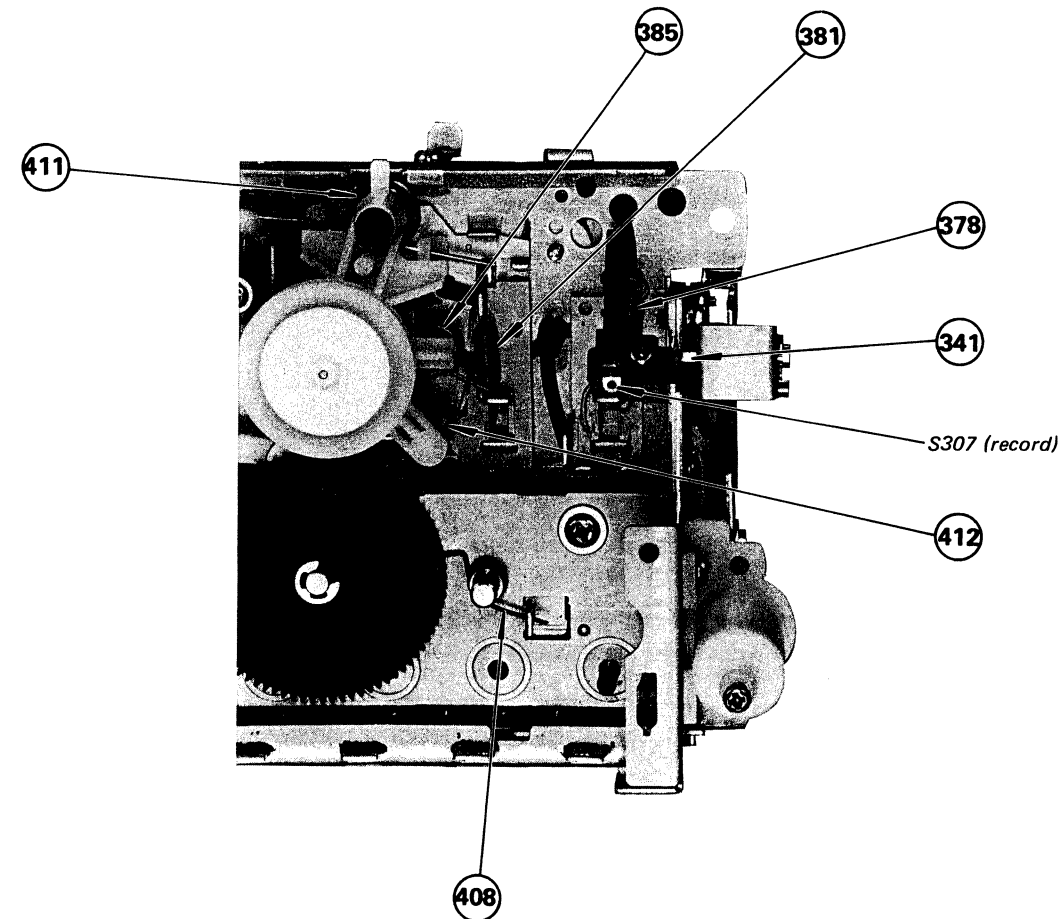
— Right Side —



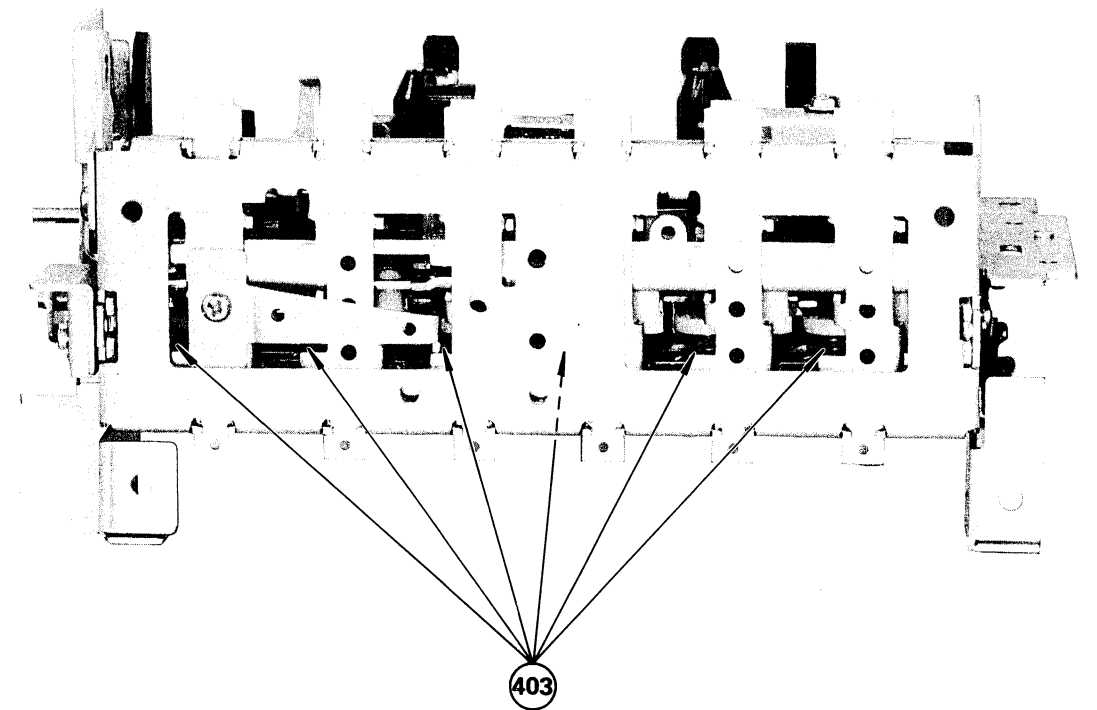
• REAR
— Left Side —



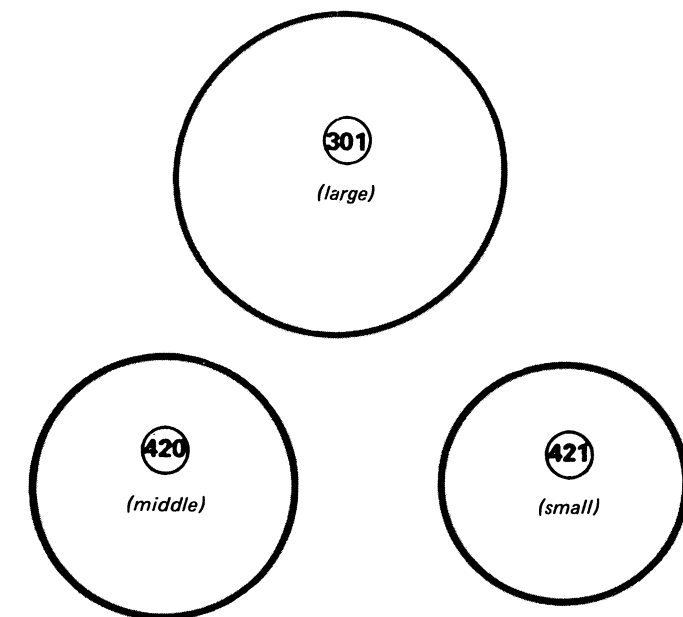
— Right Side —



• BOTTOM

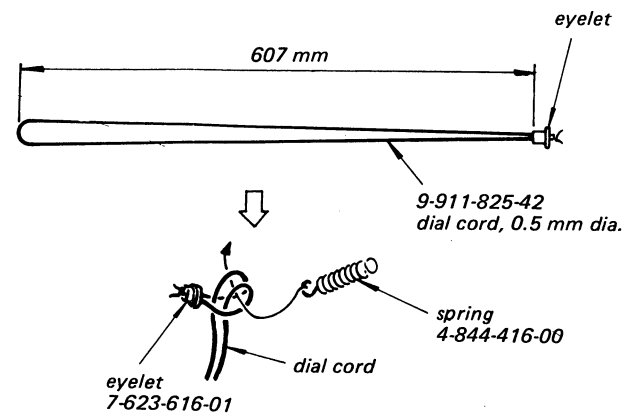


• RUBBER BELTS

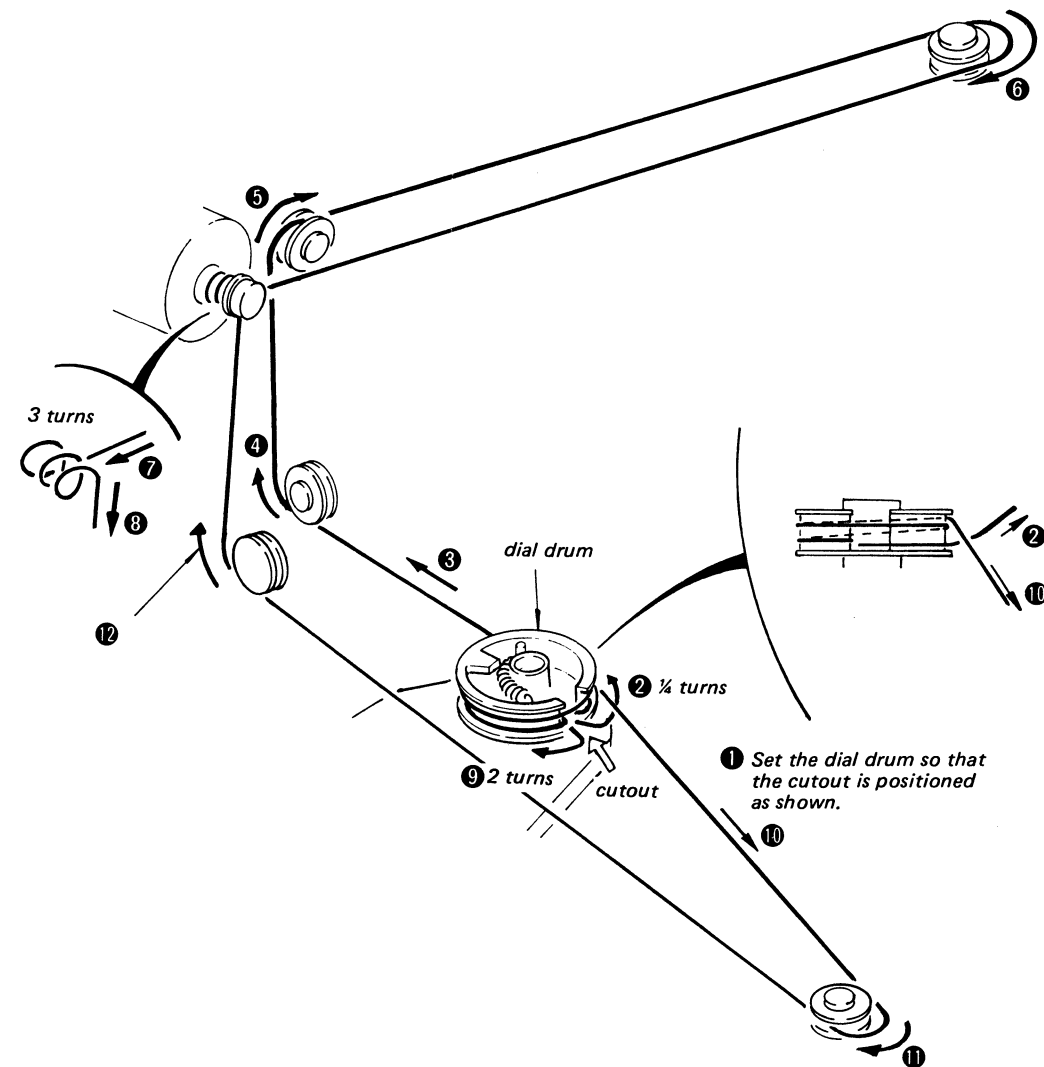


2-3. DIAL CORD STRINGING

1. Preparation

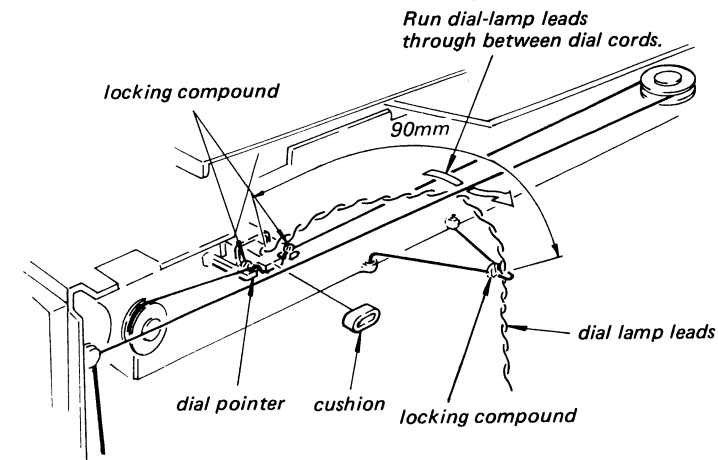


2. Stringing



3. Installing the Dial Pointer

- 1 Turn the shaft of the tuning capacitor fully counterclockwise and install the main board. (Refer to main board removal on page 10.)
 - 2 Temporarily put the dial cord on the dial pointer.
 - 3 Receive the signal (98 MHz) from the FM RF SSG.
 - 4 Set dial pointer to 98 MHz on the dial scale.
 - 5 Receive the 88 MHz, 90 MHz signal, and confirm the discrepancy of the dial pointer position is within specified below.
 - 6 Apply locking compound to the dial pointer and dial cord.
- Specification: ± 0.3 MHz



SECTION 3 ADJUSTMENTS

Note: Refer to a separate service manual for the "TTS-83" Record Player. Information is not given in this Section. Speed adjustments to the record player can be made by removing the side plate (right) and accessing through two square holes on the side of the cabinet.

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head

pinch roller

erase head

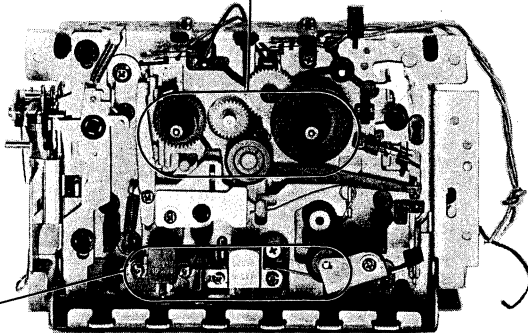
rubber belts

capstan

idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	35–60 g·cm (0.49–0.82 oz·inch)
Fast forward, rewind	CQ-201B	70–140 g·cm (0.97–1.94 oz·inch)
Back tension	CQ-102C	1–5 g·cm (0.01–0.07 oz·inch)

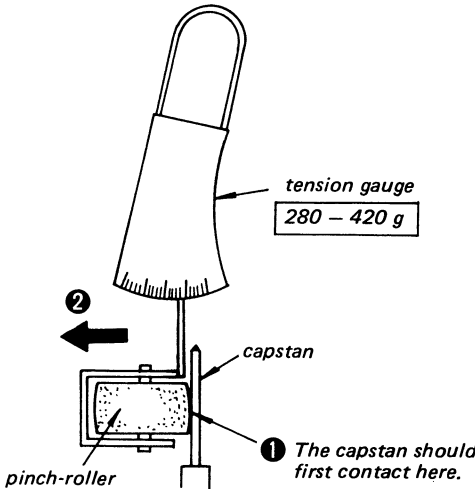


Pinch-Roller Pressure Adjustment

1. Confirm that the pinch-roller contacts as shown in Fig. ①.
2. In forward mode, pull the pinch-roller so that it is separated from the capstan as shown in Fig. ②.
3. Return the pinch-roller to the capstan gradually and read the tension gauge just when the pinch-roller starts rotating.

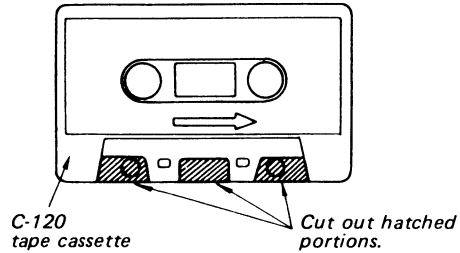
— Specification —

280 – 420 g

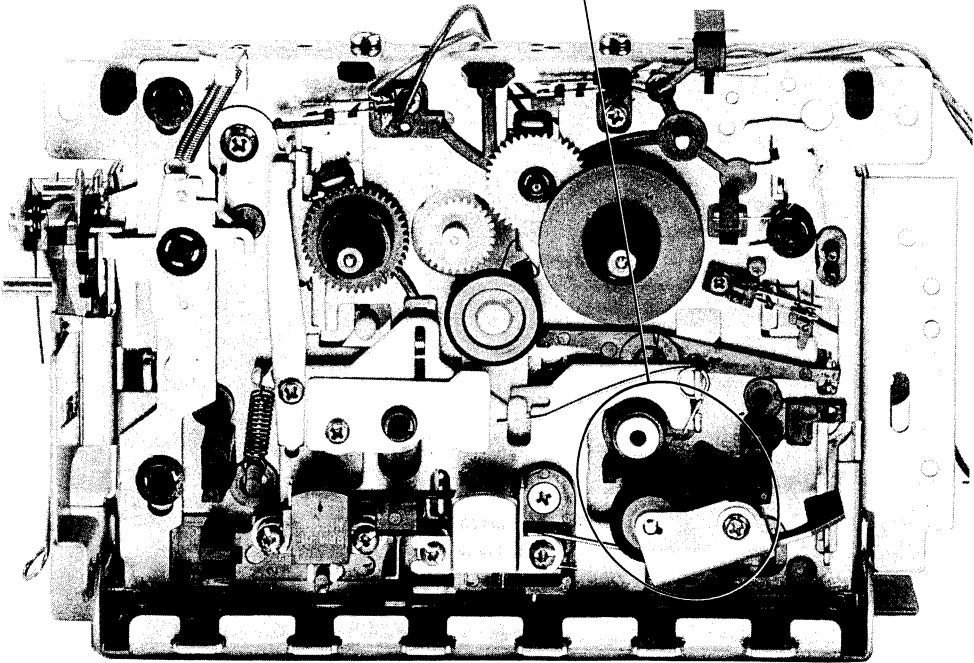
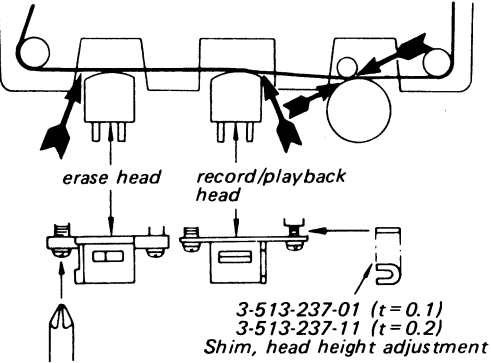


Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



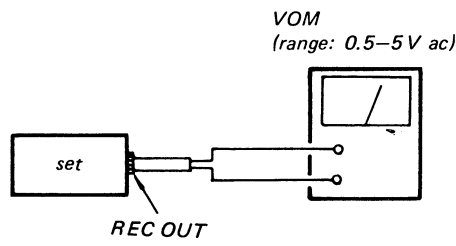
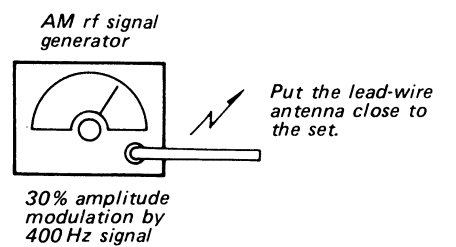
2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by arrows.



3-2. ELECTRICAL ADJUSTMENTS

3-2-1. Tuner Section

AM



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on VOM ① .

515 kHz	1,660 kHz
L113	CT104

AM TRACKING ADJUSTMENT

Adjust for a maximum reading on VOM ①

L107	600 kHz
CT103	1,400 kHz

AM IF ALIGNMENT

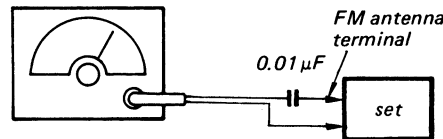
Adjust for a maximum reading on VOM ① .

450 kHz
CFU101

PHONO START/STOP

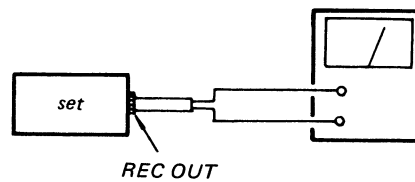
FM

FM rf signal generator



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation (100 %)

VOM ①
(range: 0.5–5 V ac)

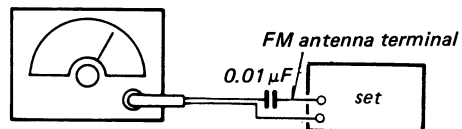


- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

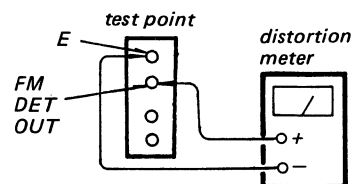
FM Discriminator Adjustment

Procedure:

FM rf signal generator



Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation: no modulation



Adjust L111 for minimum distortion.

FM FREQUENCY COVERAGE ADJUSTMENT

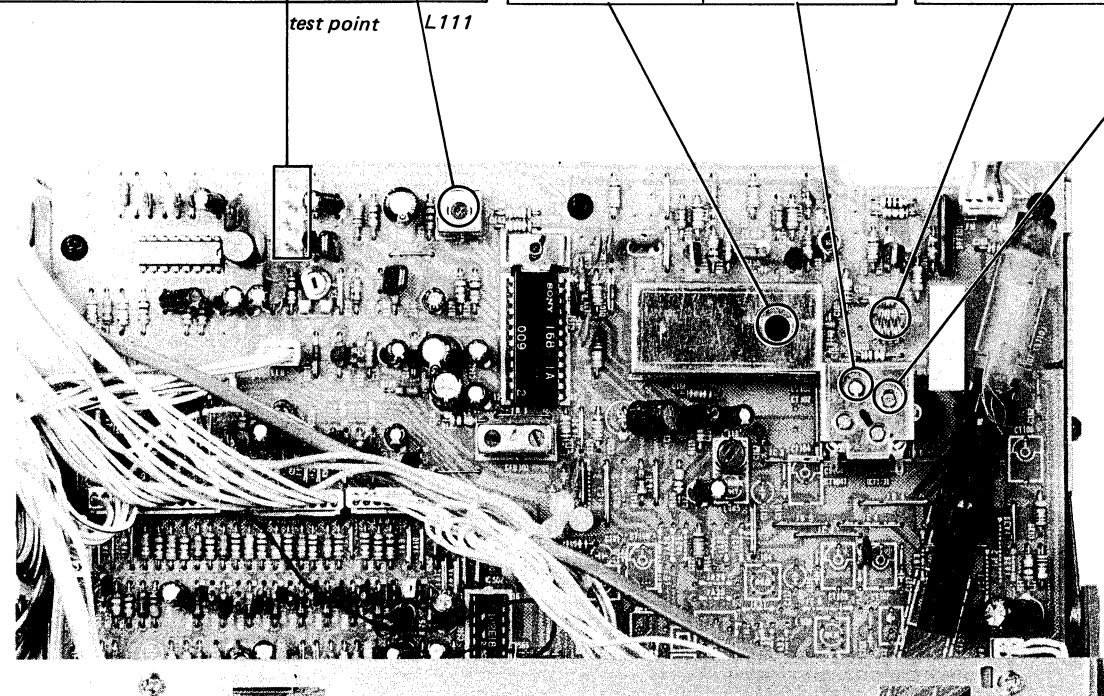
Adjust for a maximum reading on VOM ①.

87.1 MHz	108.5 MHz
L102	CT102

FM TRACKING ADJUSTMENT

Adjust for a maximum reading on VOM ①.

87.1 MHz	108.5 MHz
L101	CT101

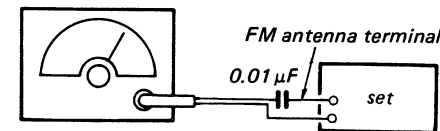


19 kHz Adjustment

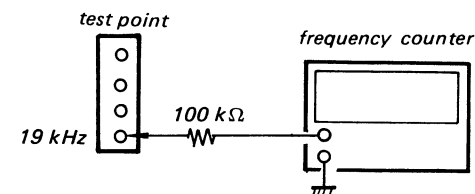
A) Regular Method

Procedure:

FM rf signal generator



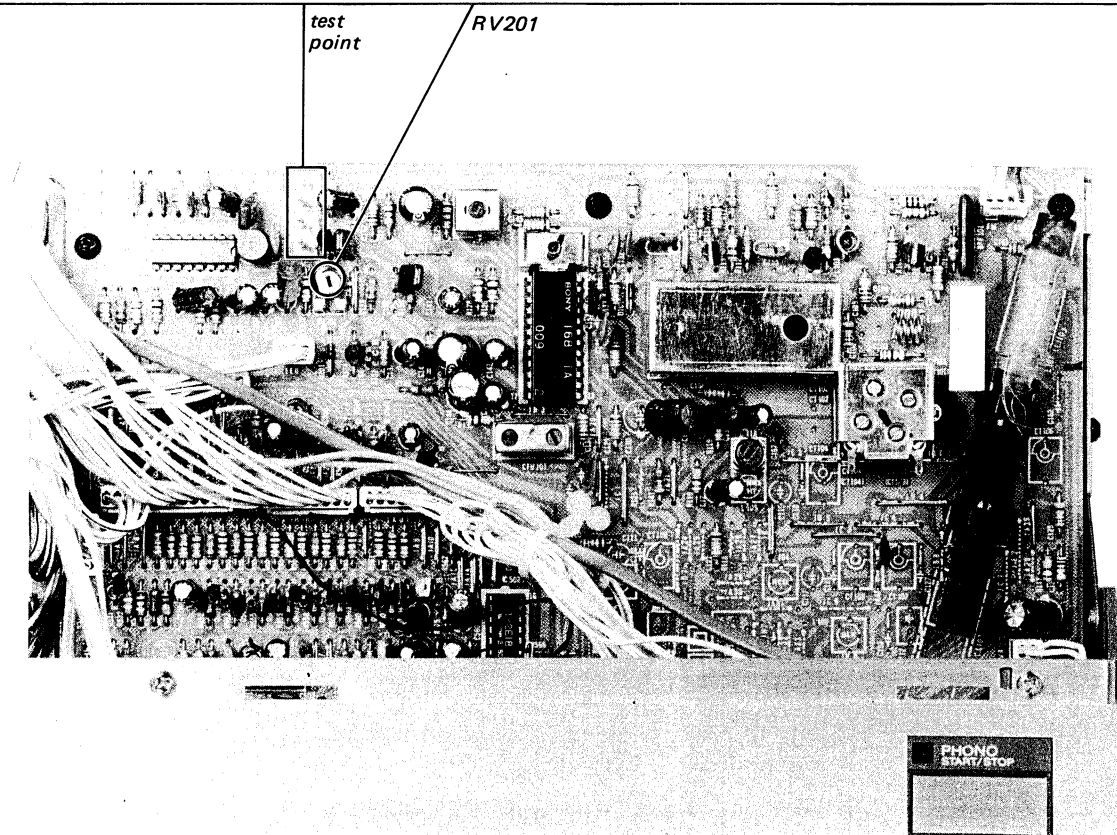
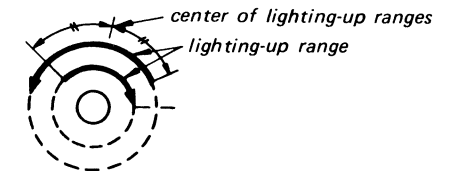
Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation: no modulation



1. Tune the set to 98 MHz.
2. Adjust RV201 for 19 kHz $\pm$ 20 Hz on the counter.

B) Simple Method

1. Tune the set to the FM stereo broadcasting signal.
2. Tune RV201 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RV201 at the center of the lighting-up range of both turns as shown below.



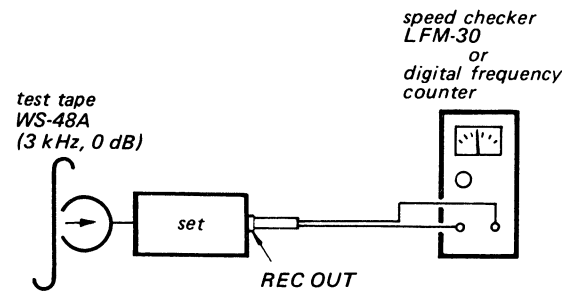
3-2-2. Tape Recorder Section

Note: All electrical adjustments to the tape recorder can be made by removing the record player.

Tape Speed Adjustment

Procedure:

Mode: playback

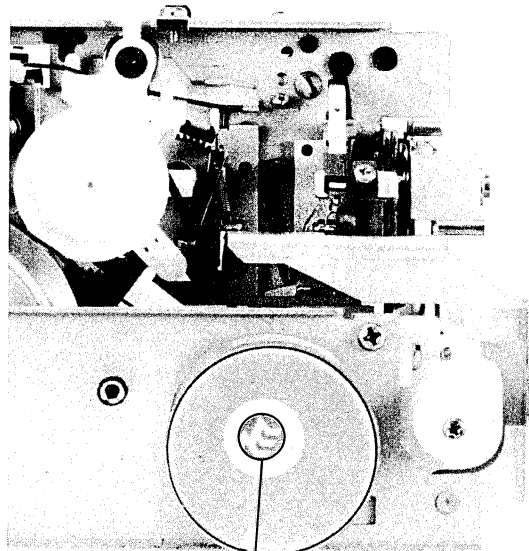


Specification:

Speed checker	Digital frequency counter
-1.5 ~ +1.5 %	2,955 ~ 3,045 Hz

Frequency difference between the beginning and the end of the tape should be within 1 % (30 Hz).

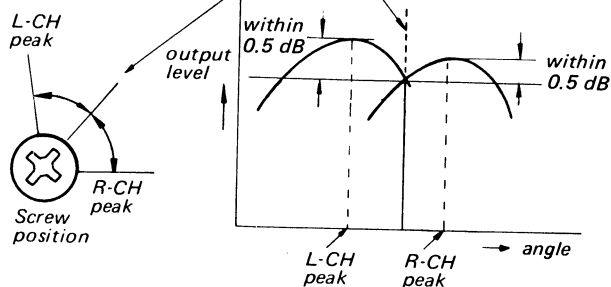
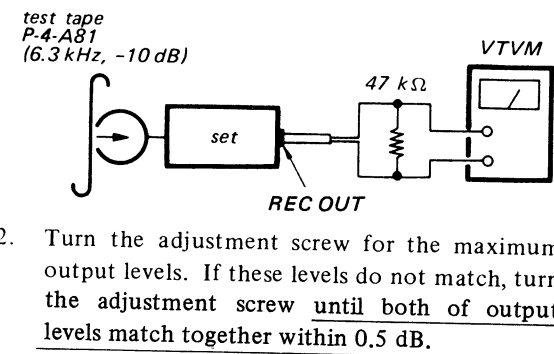
Adjustment Location:



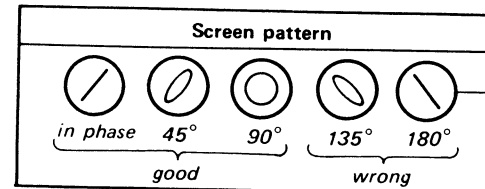
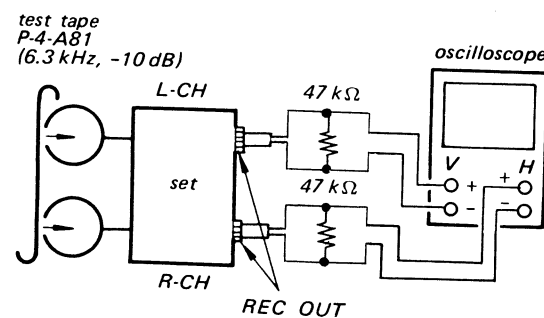
tape speed adjustment control inside motor

Record/playback Head Azimuth Adjustment Procedure:

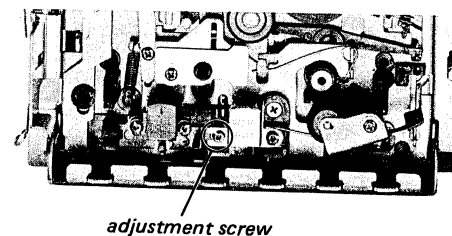
1. Mode: playback



3. Phase Check
Mode: playback



Adjustment Location:

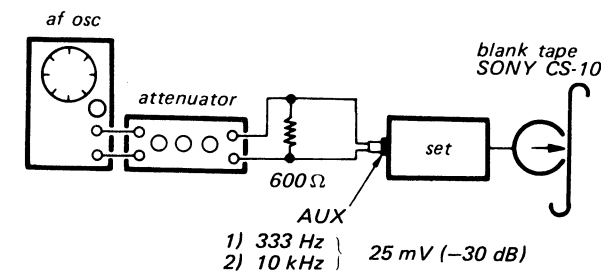


adjustment screw

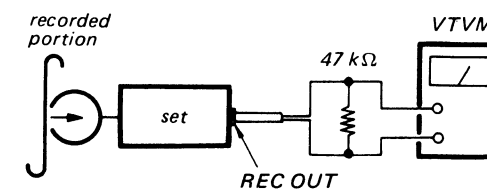
Record Bias Adjustment

Procedure:

1. SOURCE SELECT switch: AUX
ISS switch: 1
Mode: record

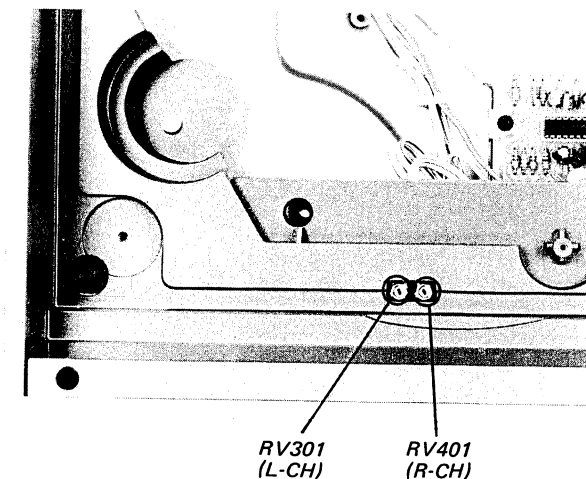


2. SOURCE SELECT switch: TAPE
Mode: playback



Adjust BIAS controls RV301 (L-CH), RV401 (R-CH) so that the REC OUT level of 10 kHz signal is 0 ± 1.5 dB relative to that of 333 Hz.

Adjustment Location:



RV301 (L-CH) RV401 (R-CH)

Semiconductor Lead Layouts

2SC710-14



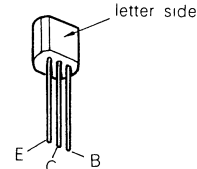
2SC1364 2SC1362



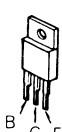
2SC2458L



2SC2603



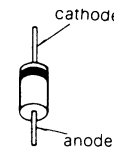
2SD880



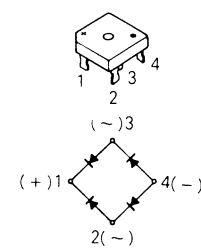
2SD774



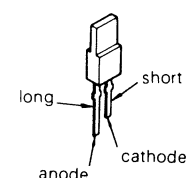
IS1555 10E2 RD15EL2



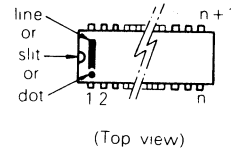
S2VB20



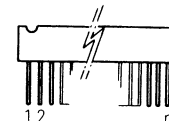
SLP151B SLP152B



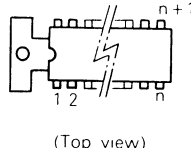
BA1351 IR2E18



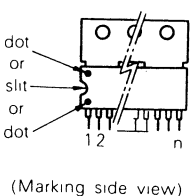
BA328



CX168



HA1397

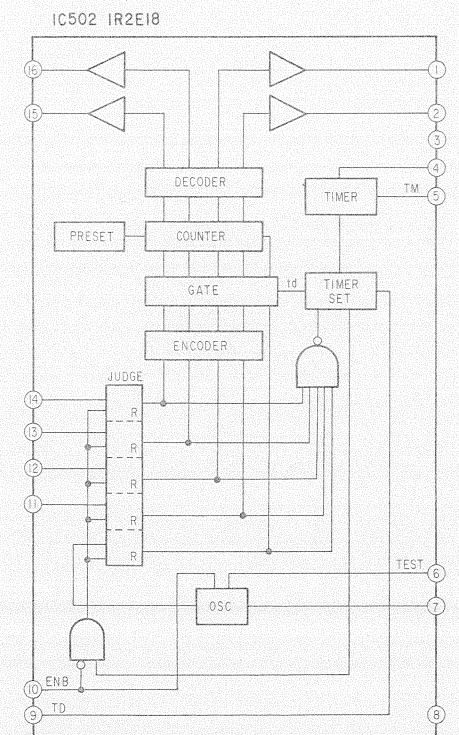
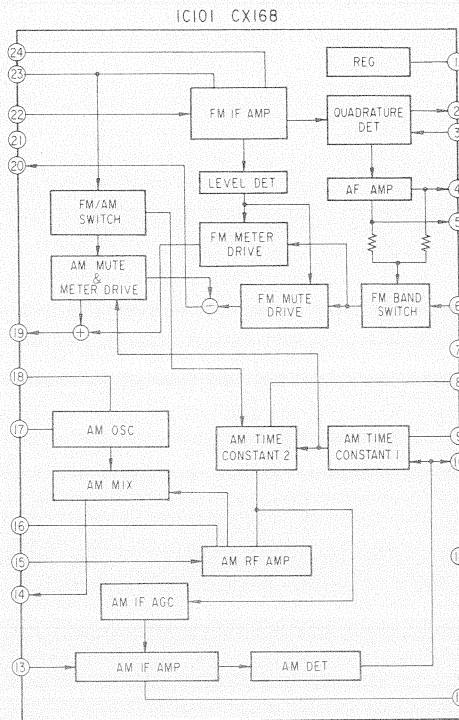


SECTION 4

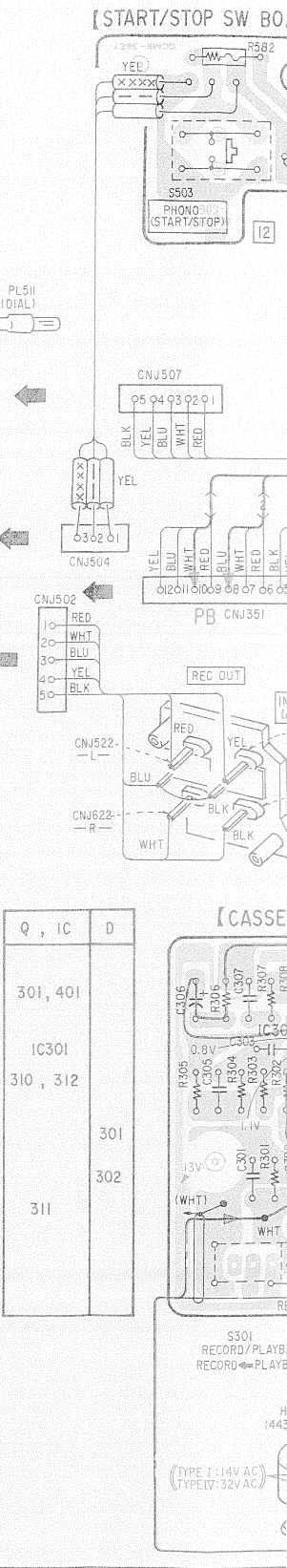
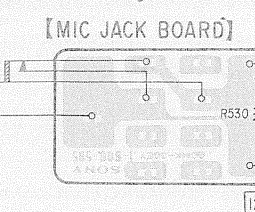
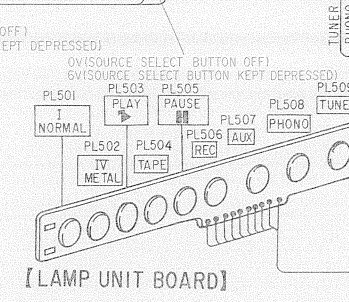
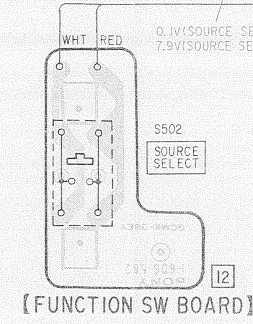
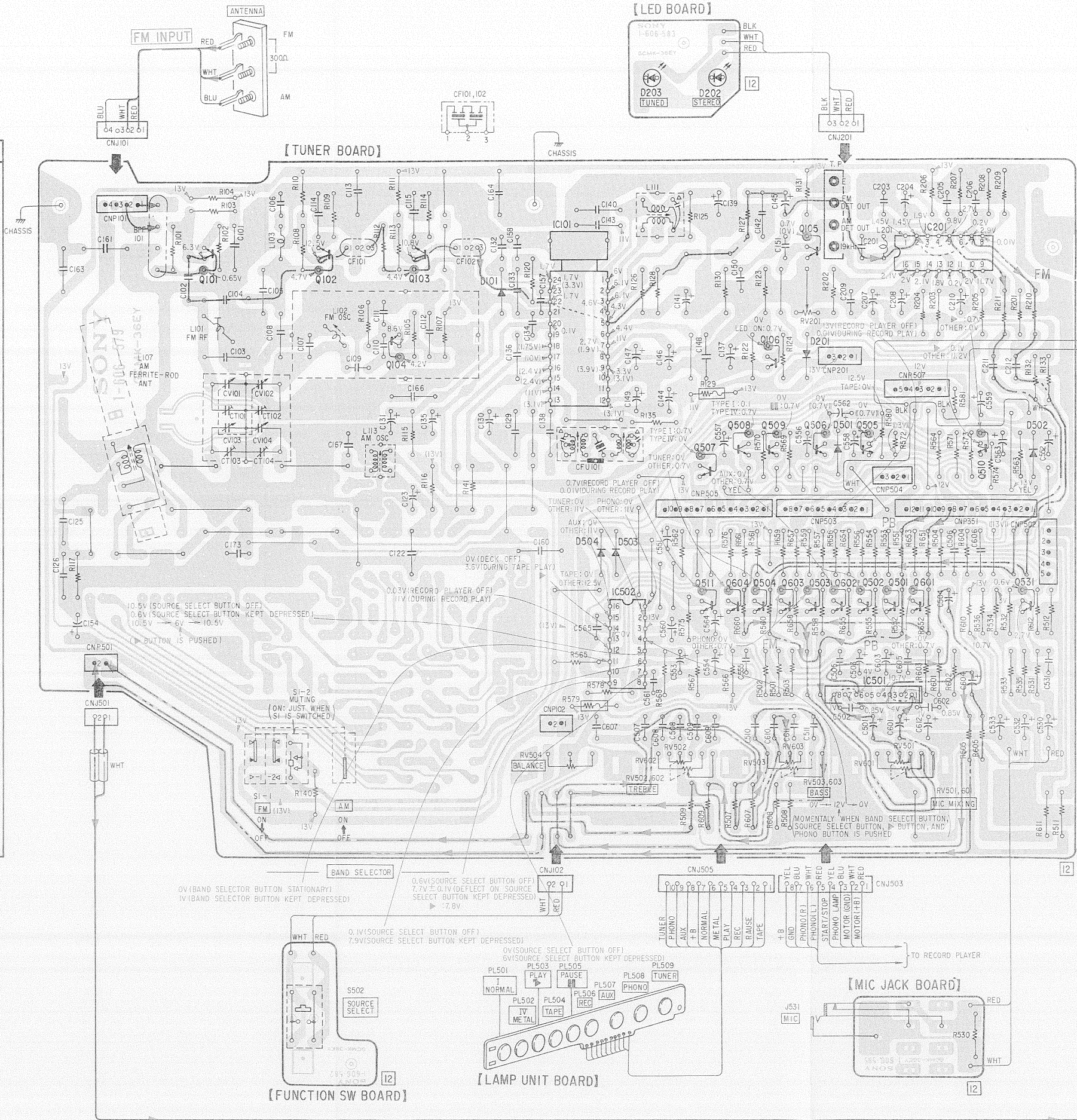
DIAGRAMS

4-1. MOUNTING DIAGRAM

- Tuner, Power Supply/Power Amp and Cassette Sections —
- Conductor Side —
- See page 24 for Semiconductor Lead Layouts.

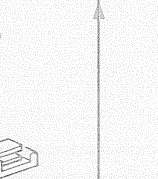
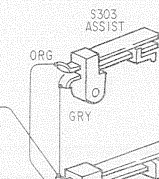
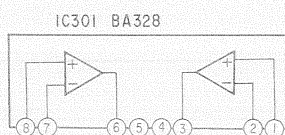
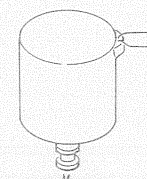
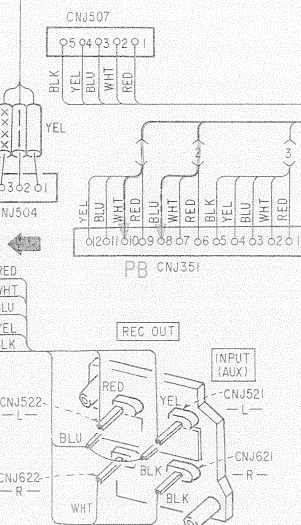
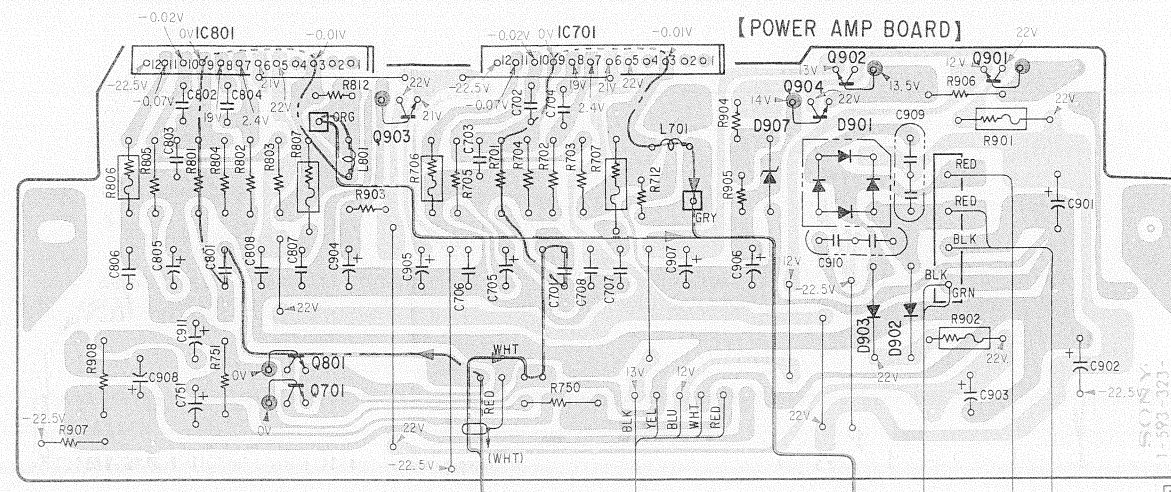
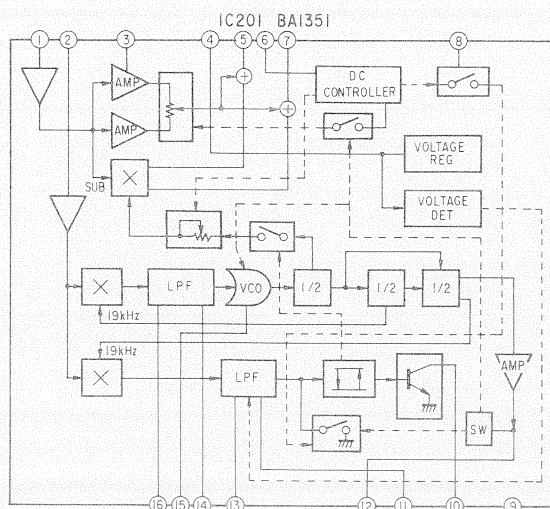
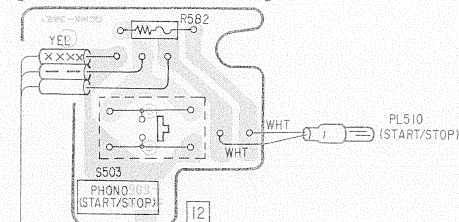


Q, IC	D
101, 102, 103 105	
IC201	
IC101	101
104, 106	201
508, 509, 506, 505, 510	501, 502
507	
	504, 503
511, 604, 504, 603, 503	
602, 502, 501, 601	531
IC502	
IC501	

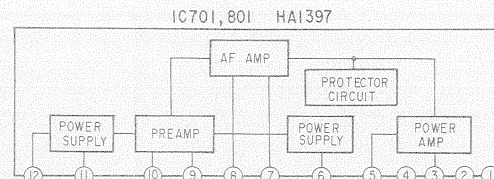
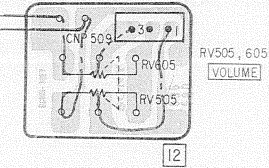


Q	IC	D	IC801	903	IC701	902	901
			801			904	
			701			907	901
							903,902

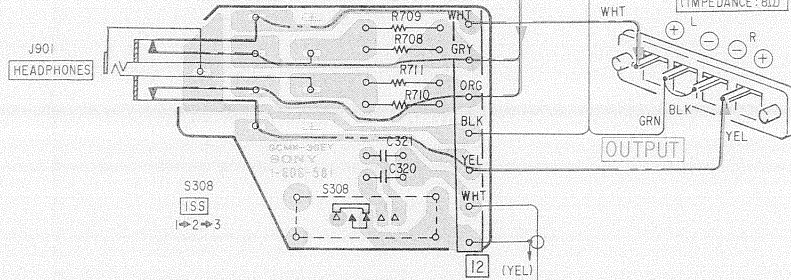
[START/STOP SW BOARD]



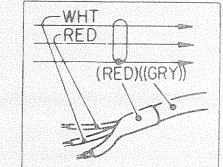
[VOLUME BOARD]



[HEADPHONE BOARD]



Note:
 • Color code of sleeving over the end of the jacket.



- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : part mounted on the conductor side.
- : indicates side identified with part number.
- : B+ pattern

- : signal path
- : L-CH signal path
- : R-CH signal path

A

SECTION 4 DIAGRAMS

C

D

E

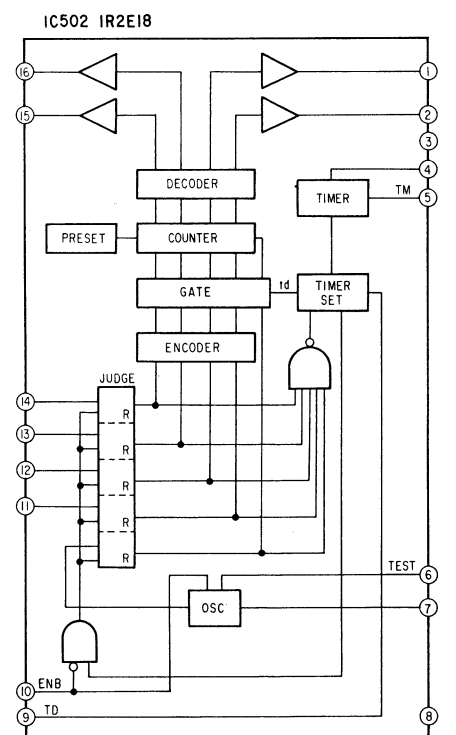
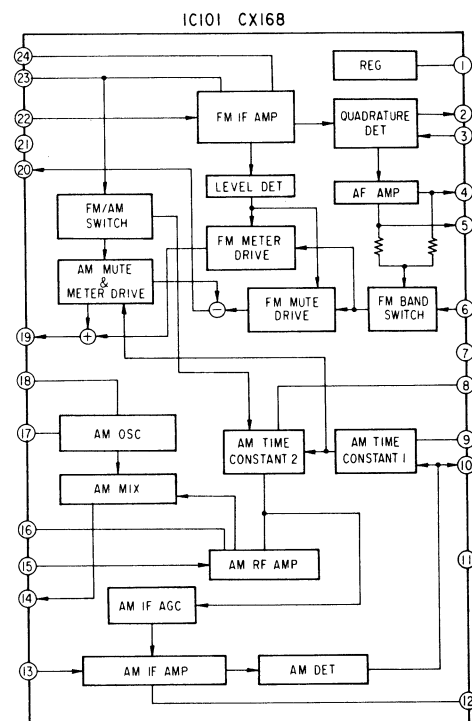
F

G

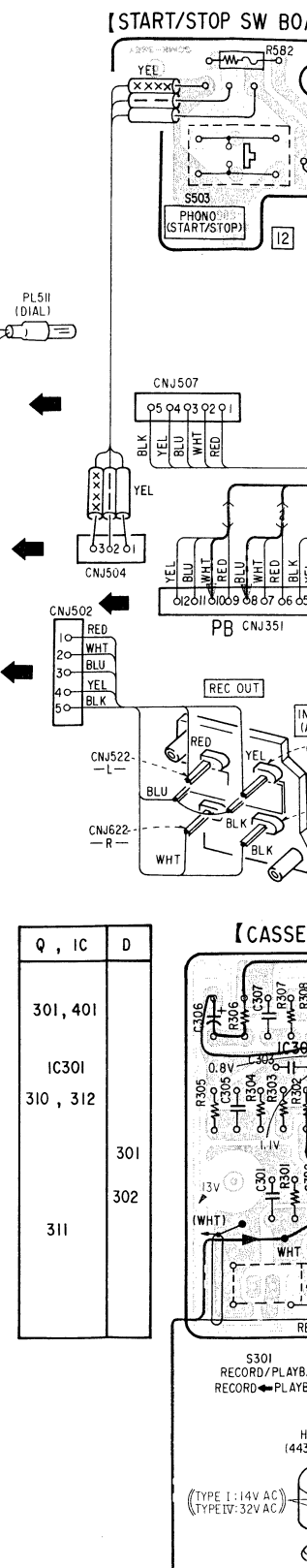
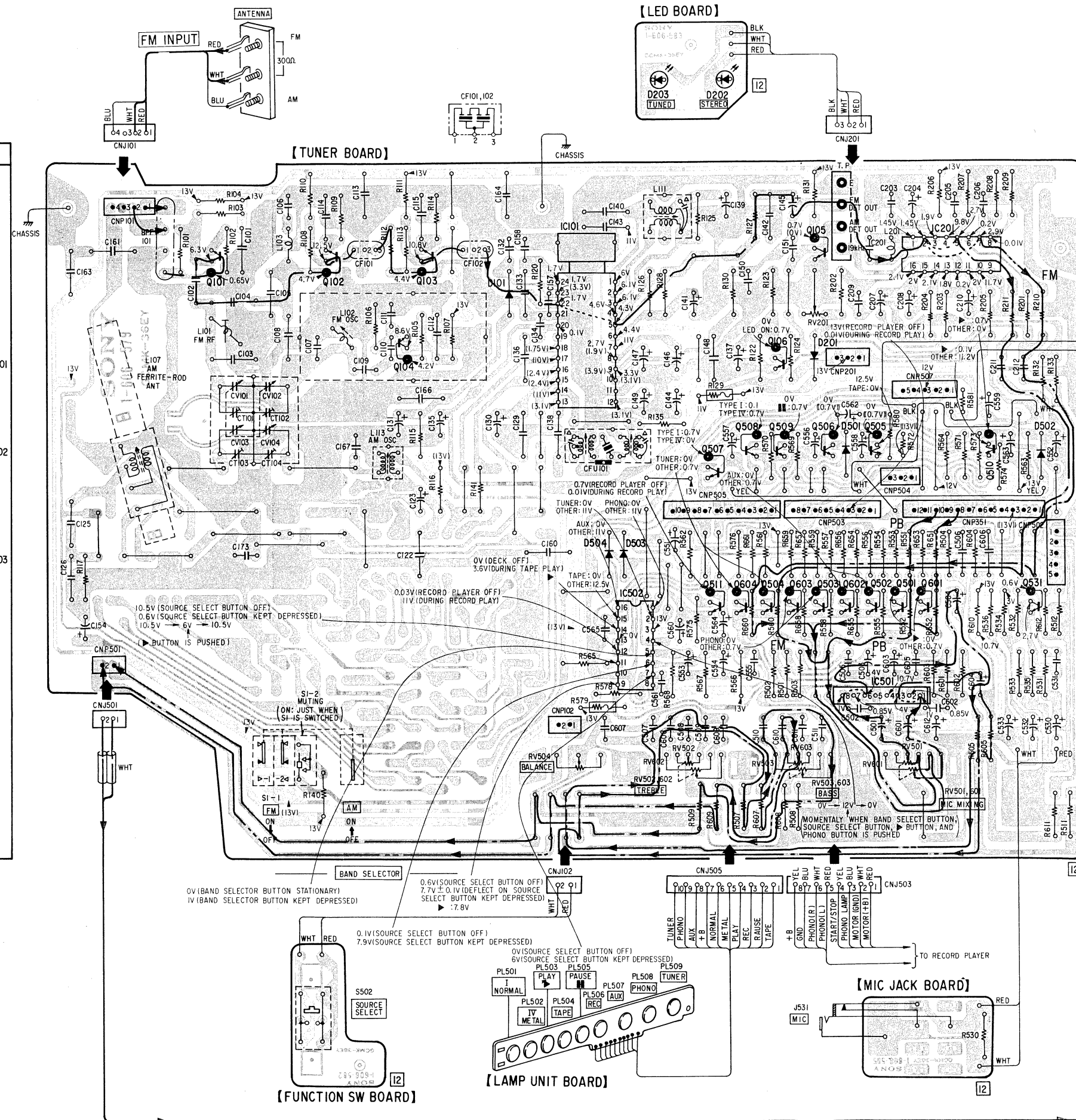
H

4-1. MOUNTING DIAGRAM

- Tuner, Power Supply/Power Amp and Cassette Sections —
- Conductor Side —
- See page 24 for Semiconductor Lead Layouts.

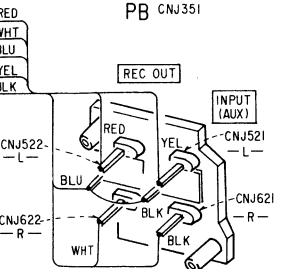
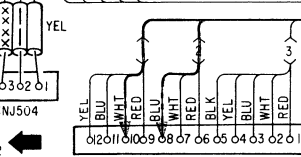
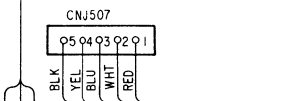
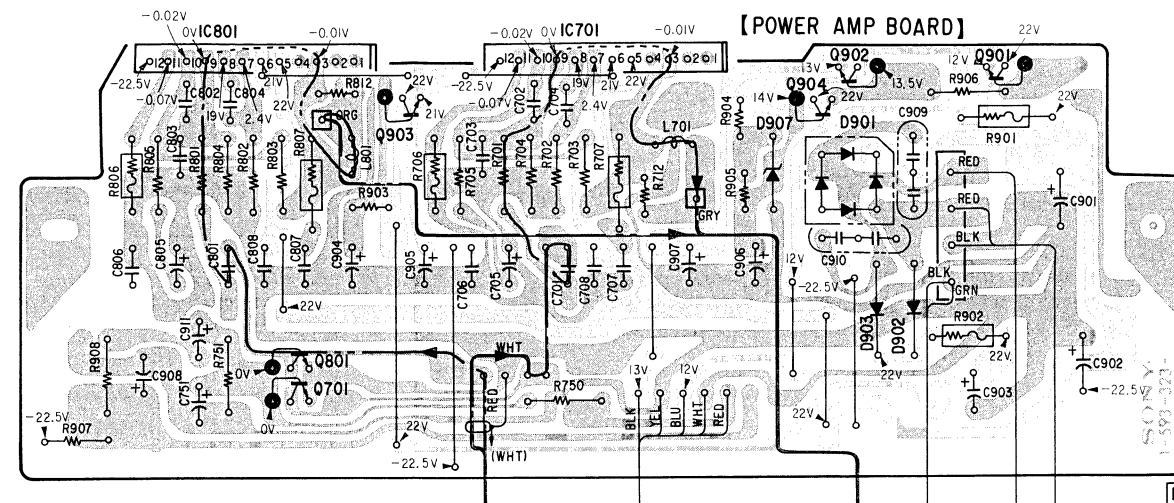
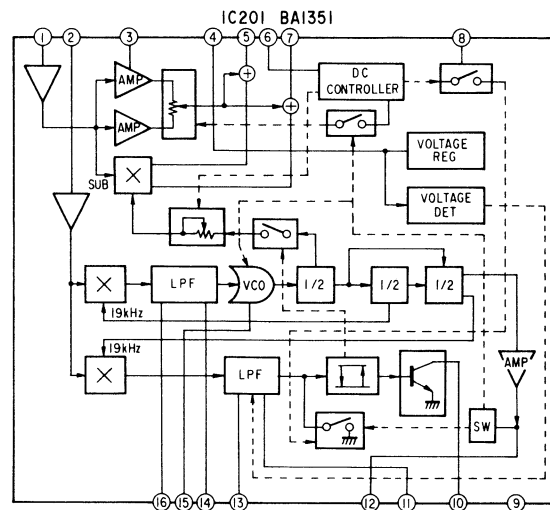
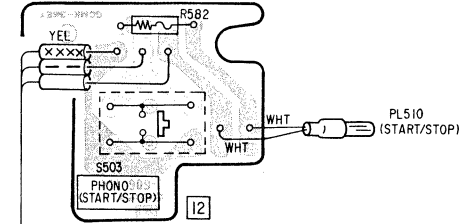


Q, IC	D
101, 102, 103	105
IC201	101
IC101	101
104, 106	201
508, 509, 506, 505, 510	501, 502
507	504, 503
511, 604, 504, 603, 503	531
602, 502, 501, 601	531
IC502	531
IC501	531

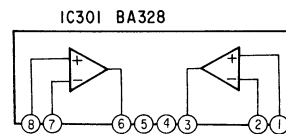
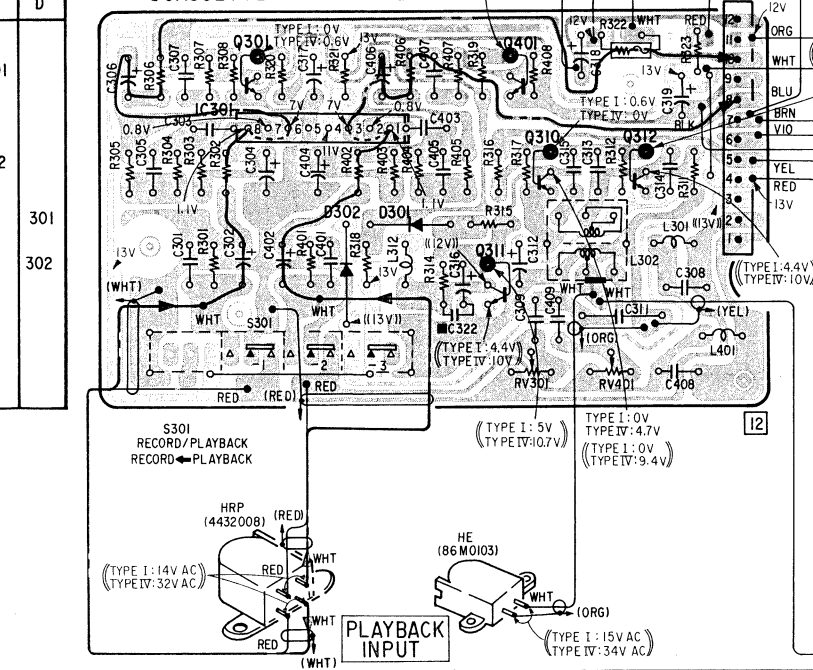


Q	IC	D
IC801	903	IC701
801	904	902
701	901	903,902

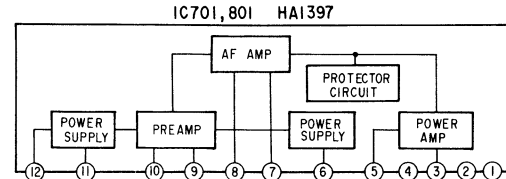
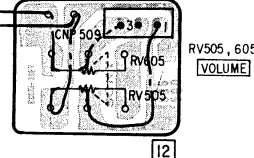
[START/STOP SW BOARD]



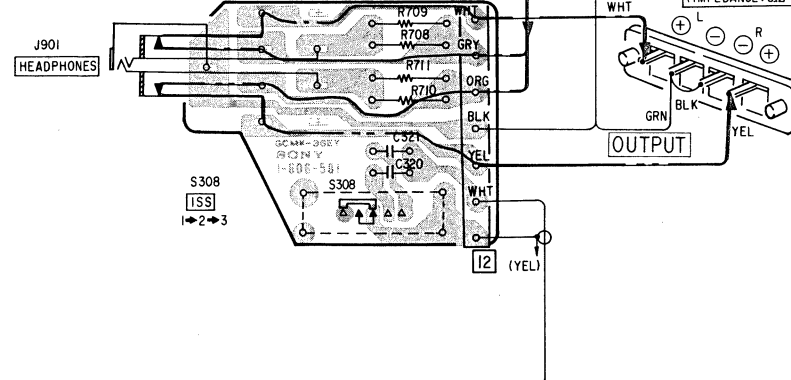
[CASSETTE AMP BOARD]



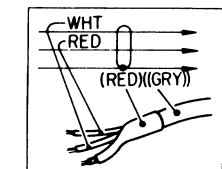
[VOLUME BOARD]



[HEADPHONE BOARD]



Note:
• Color code of sleeving over the end of the jacket.



- —○— : parts extracted from the component side.
- —●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [] : indicates side identified with part number.
- [] : B+ pattern

- —→ : signal path
- —→ : L-CH signal path
- —→ : R-CH signal path

4-2. SCHEMATIC DIAGRAM

— Tuner, Power Supply/Power Amp and Cassette
Sections —

B

C

D

E

F

G

H

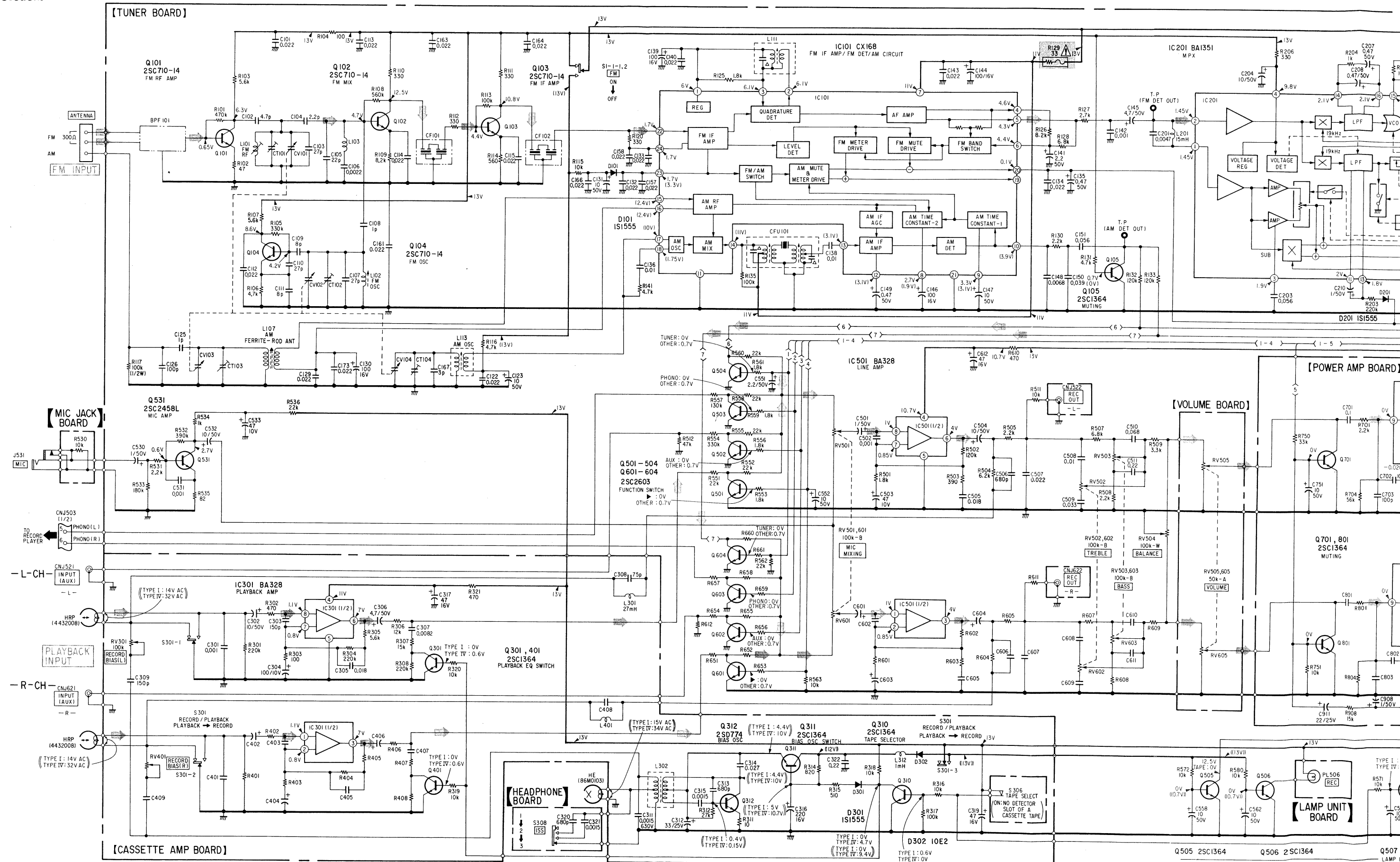
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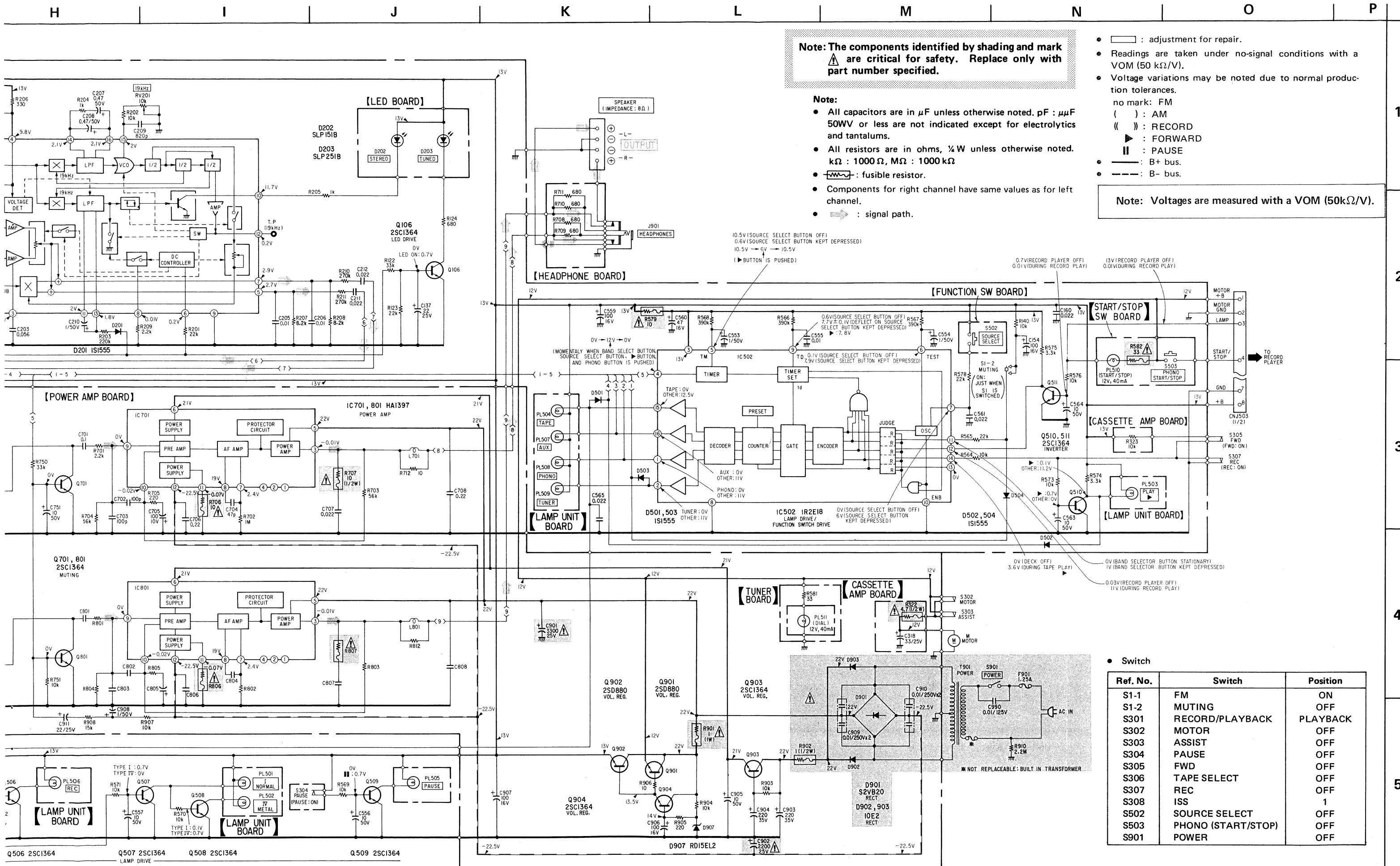
2

3

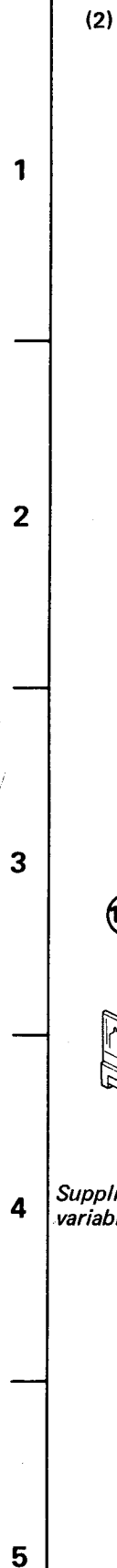
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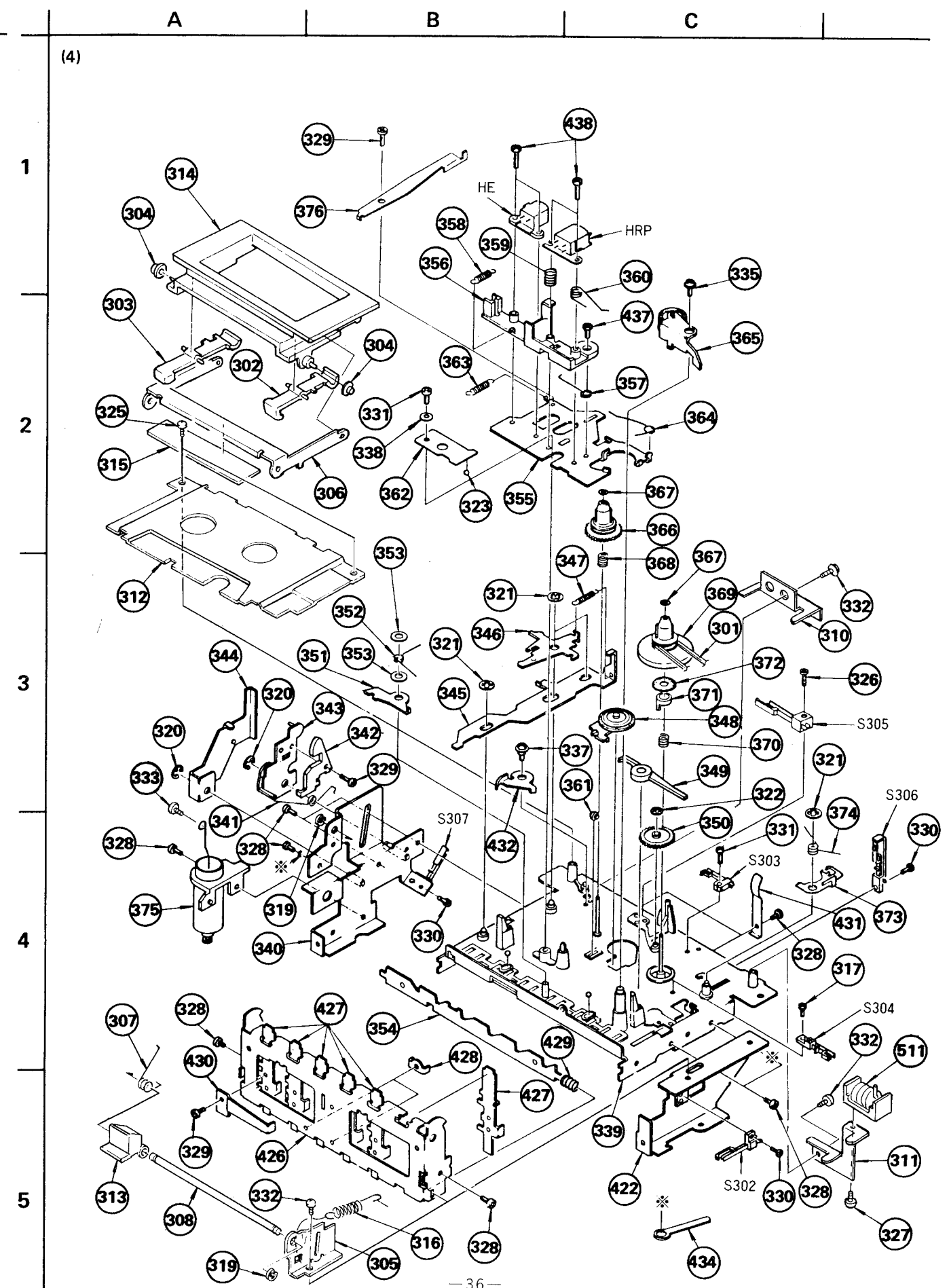
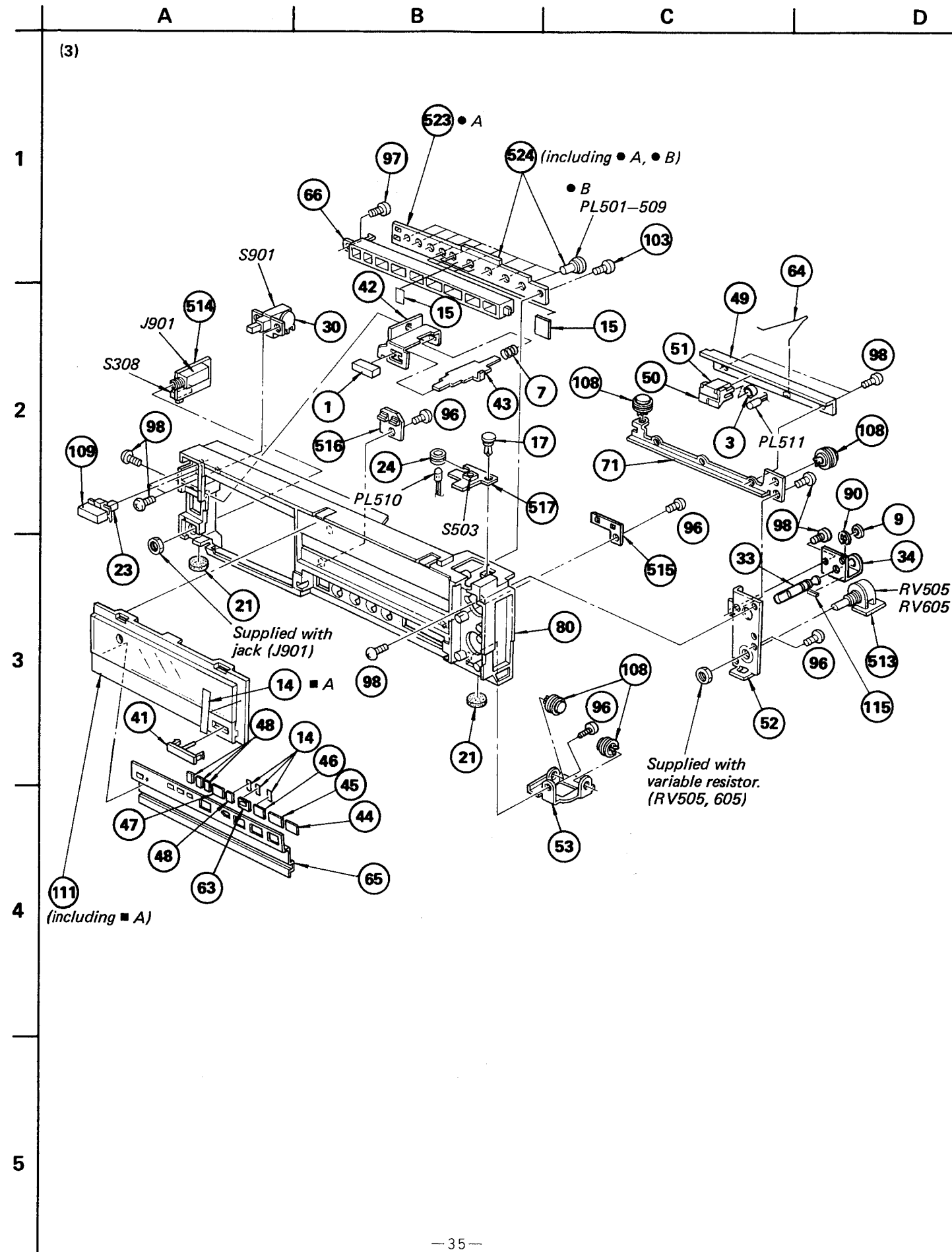
5

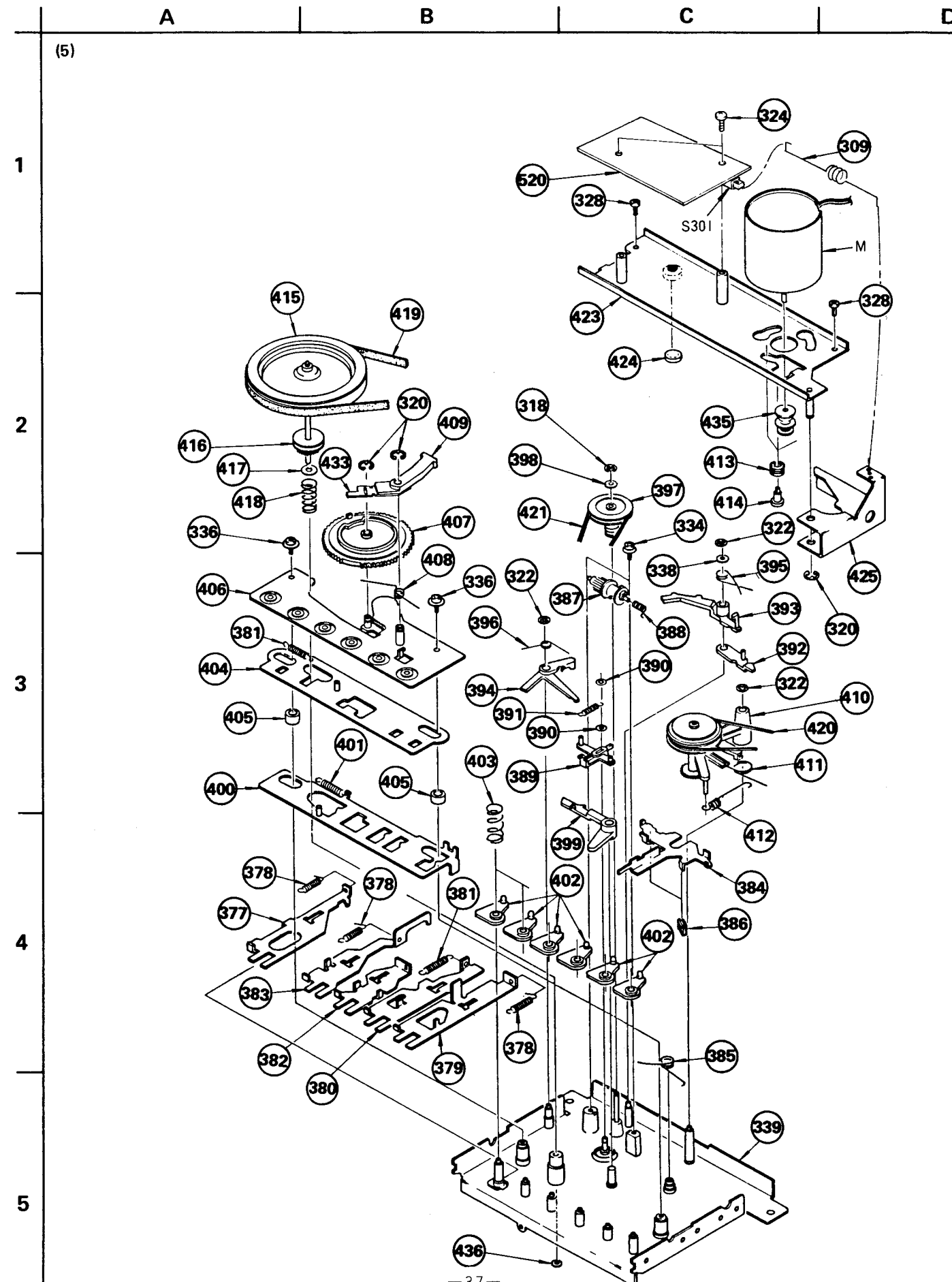




SECTION 5







GENERAL SECTION

No.	Part No.	Description
1	3-304-419-00	BUTTON, EJECT
2	.....	.....
3	3-531-928-00	CUSHION
4	4-857-601-00	CUSHION, DUST COVER
5	.....	.....
6	3-703-114-01	LABEL, MAIN CAUTION
7	3-642-629-00	SPRING, COMPRESSION
8	3-701-191-99	FOOT ASSY, MINI
9	3-701-444-21	WASHER, 6
10	3-701-946-21	LABEL, FUSE
11	3-703-108-01	SCREW +BV 3X6, S TIGHT
12	3-703-244-00	BUSHING, CORD
13	3-703-044-26	LABEL, CAUTION
14	3-831-441-XX	STRIP, FITTING, BUTTON
15	3-839-640-00	CUSHION
16	4-812-134-00	RIVET NYLON, 3.5
17	4-829-039-00	RIVET, NYLON
18	4-844-416-00	SPRING, TENSION
19	4-860-009-11	BRACKET, IC
20	4-860-013-31	BUSHING, ORNAMENTAL
21	4-860-711-00	FELT
22	4-864-307-00	RING
23	4-866-342-00	JOINT (B), KNOB
24	4-866-622-00	HOLDER, LAMP
25	4-868-466-00	RETAINER, DUST COVER
26	4-871-719-00	BRACKET, F
27	.....	.....
28	4-874-038-11	KNOB, R (DIA.16)
29	4-874-058-01	KNOB, SQUARE (3X14)
30	4-875-455-01	COVER (DIA. 20), CAPACITOR
31	4-880-201-21	PLATE, JACK
32	4-880-217-00	BRACKET, CONTROL
33	4-880-218-00	SHAFT, TUNING
34	4-880-219-00	BRACKET, TUNING SHAFT
35	4-880-220-00	BRACKET (B), PC BOARD
36	4-880-329-00	PLATE (E), SHIELD
37	4-880-224-00	HEAT SINK (B)
38	4-880-227-00	HINGE
39	.....	.....
40	4-880-234-00	BUTTON, P.S.S
41	4-880-235-00	BUTTON, SOURCE
42	4-880-237-00	GUIDE, EJECT
43	4-880-238-00	LEVER, EJECT
44	4-880-240-01	PLATE, INDICATION, SOURCE
45	4-880-240-11	PLATE, INDICATION, SOURCE

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF:μF, PF:μF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μH

GENERAL SECTION

No.	Part No.	Description
46	4-880-240-21	PLATE, INDICATION, SOURCE
47	4-880-240-31	PLATE, INDICATION, SOURCE
48	4-880-241-00	LENS
49	4-880-243-00	RAIL, POINTER
50	4-880-244-00	POINTER
51	4-880-245-00	REFLECTOR
52	4-880-246-00	BRACKET, T.V.
53	4-880-247-00	BRACKET (A), PULLEY
54	4-880-249-00	RETAINER, TRANSFORMER
55	4-880-250-00	SHEET, INSULATING
56	4-880-328-00	PLATE (D), SHIELD
57	4-880-330-00	PLATE (F), SHIELD
58	.....	.....
59	.....	.....
60	.....	.....
61	.....	.....
62	4-880-260-00	REINFORCEMENT
63	4-880-261-00	PLATE, INDICATION, REC
64	4-880-265-00	HOLDER, LEAD WIRE
65	4-880-268-51	SCALE (H), DIAL
66	4-880-269-00	COVER, LAMP
67	4-880-274-00	DRUM, DIAL
68	4-880-275-00	RETAINER, DRUM
69	.....	.....
70	.....	.....
71	4-880-279-00	BRACKET (B), PULLEY
72	4-880-281-31	PLATE (LEFT), SIDE
73	4-880-282-31	PLATE (RIGHT), SIDE
74	4-880-286-00	CHASSIS (A)
75	4-880-287-00	CHASSIS (B)
76	4-880-288-00	CHASSIS (C)
77	4-880-289-00	PLATE, BOTTOM
78	.....	.....
79	4-880-291-02	CABINET
80	4-880-292-02	PANEL, SUB
81	.....	.....
82	4-880-300-00	LABEL, MODEL NUMBER (USA)
83	4-880-333-00	+ PTPWH (2.5X5)
84	4-880-313-00	BRACKET (C), PULLEY
85	4-880-315-00	SHEET, LAYOUT
86	4-880-630-11	SHEET, TURNTABLE
87	7-623-616-01	EYELET, 2X3
88	7-623-923-01	WASHER 2.6, NYLON
89	7-623-510-00	LUG, 4
90	7-624-109-04	STOP RING 5.0, TYPE -E

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

SEMICONDUCTORS

In each case, U : μ, for example:
 UA.... : μA...., UPA.... : μPA...., UPC.... : μPC,
 UPD.... : μPD....

GENERAL SECTION

No.	Part No.	Description
91	7-682-147-01	SCREW +P 3X6
92	.....	
93	7-685-154-11	SCREW +P 3X35 TYPE2 NON-SLIT
94	7-685-153-24	SCREW +P 3X30 TYPE2 SLIT
95	7-685-553-14	SCREW +BTP 3X30 TYPE2 N-S
96	7-685-646-19	SCREW +BVTP 3X8 TYPE2 N-S
97	7-685-647-11	SCREW +BVTP 3X10 TYPE2 N-S
98	7-685-872-09	SCREW +BVTT 3X8 (S)
99	7-685-873-01	SCREW +BVTT 3X10 (S)
100	7-685-874-09	SCREW +BVTT 3X12 (S)
101	7-685-880-01	SCREW +BVTT 4X6 (S)
102	7-685-884-09	SCREW +BVTT 4X14 (S)
103	7-685-647-19	SCREW +BVTP 3X10 TYPE2 N-S
104	X-4870-909-1	SPINDLE ASSY, AUTO
105	9-911-815-02	CUSHION
106	9-911-825-42	STRING, 0.5MM WHITE
107	A-4322-406-A	PANEL ASSY
108	X-4864-705-0	PULLEY ASSY
109	X-4873-701-0	KNOB ASSY, POWER
110	X-4879-406-0	KNOB (DIA.28) ASSY, R
111	X-4880-201-0	PLATE ASSY (L), FROSTED
112	X-4880-207-0	WINDOW ASSY, CASSETTE
113	X-4880-209-0	KNOB (DIA. 28) ASSY, R
114	X-4869-907-2	COVER ASSY, DUST
115	9-911-863-XX	SPACER
116	0-056-028-00	WASHER, PLAIN, 14 DIA.

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
141	1-501-161-00	ANTENNA, FEEDER
142	3-703-082-31	LABEL, CAUTION
143	3-701-620-00	BAG, POLYETHYLENE
144	3-701-630-00	BAG, POLYETHYLENE
145	3-701-632-00	BAG, POLYETHYLENE
146	3-701-806-00	ADAPTOR, 45, (E)
147	3-783-862-21	MANUAL, INSTRUCTION
148	4-804-655-00	RIBBON, BELT
149	4-856-387-00	SHEET (C), PROTECTION
150	3-703-390-01	INSTRUCTION
151	4-860-113-00	SPACER
152	.....	
153	4-880-334-00	CUSHION, ARM
154	4-868-459-00	SPACER, CASSETTE LID
155	4-870-443-00	SPACER, CLUTCH
156	4-870-929-00	SPINDLE, SHORT
157	4-880-202-00	INDIVIDUAL CARTON
158	4-880-340-00	CUSHION (RIGHT), UPPER
159	4-880-339-00	CUSHION (FRONT), LOWER
160	4-880-341-00	CUSHION (REAR), LOWER
161	4-880-211-00	SHEET, PROTECTION
162	4-880-213-00	RETAINER, TTS FRAME
163	4-880-610-00	COLLAR, LOCK, T.T.
164	X-3701-105-0	ROD ASSY, CLEANING, HEAD
165	4-880-342-00	CUSHION (LEFT), UPPER
166	0-056-028-00	WASHER, PLAIN, 14 DIA.

MECHANISM SECTION

No.	Part No.	Description
301	3-527-150-XX	BELT, TAPE-COUNTER
302	3-555-113-00	SPRING (R), CASSETTE-HOLDER
303	3-555-114-00	SPRING (L), CASSETTE-HOLDER
304	3-575-348-00	ROLLER, GUIDE
305	4-880-230-00	FULCRUM PLATE (R), CASSETTE-HOLDER
306	4-880-254-00	FULCRUM LEVER, CASSETTE-HOLDER
307	4-880-255-00	SPRING, TORSION
308	4-880-256-00	SHAFT, FUNCTION-BUTTON
309	4-880-257-00	SPRING, TENSION
310	4-880-258-00	BRACKET, DECK
311	4-880-259-00	BRACKET, TAPE-COUNTER
312	4-880-276-00	PLATE, ORNAMENT
313	4-880-277-00	BUTTON, FUNCTION
314	4-880-290-00	HOLDER, CASSETTE
315	4-880-293-00	SHEET, PROTECTION
316	4-880-312-00	SPRING, TENSION
317	7-621-255-00	SCREW +P 2X5
318	7-624-104-04	E RING 2
319	7-624-106-04	E RING 3
320	7-624-106-14	E RING 3
321	7-624-190-11	NUT, SPEED; CS 3
322	7-624-190-81	NUT, SPEED; CS 2
323	7-671-112-02	BALL, STEEL
324	7-682-147-01	SCREW +P 3X6
325	7-685-103-19	SCREW +P 2X5
326	7-685-105-11	SCREW +PTP 2X8
327	7-685-131-11	SCREW +PTP 2.6X4
328	7-685-750-01	SCREW +PTT 3X5
329	7-685-791-01	SCREW +PTT 2.6X5
330	7-685-792-01	SCREW +PTT 2.6X6
331	7-685-794-01	SCREW +PTT 2.6X10
332	7-685-871-01	SCREW +BVTT 3X6
333	7-687-232-11	SCREW +PTPWH 2.6X5
334	7-687-233-11	SCREW +PTPWH 2.6X6
335	7-687-234-11	SCREW +PTPWH 2.6X8
336	7-687-245-11	SCREW +PTPWH 3X6
337	7-687-500-31	SCREW +PTPWH 2.6X5
338	7-688-003-11	WASHER 3
339	9-982-076-01	CHASSIS ASSY
340	9-982-077-01	PLATE (L) ASSY, SIDE
341	9-982-078-01	SPRING, TORSION
342	9-982-079-01	PLATE, EJECTION
343	9-982-080-01	LEVER ASSY, EJECTION
344	9-982-081-01	LEVER (B) ASSY, EJECTION
345	9-982-082-01	PLATE, RECORD-LEVER

MECHANISM SECTION

No.	Part No.	Description
346	9-982-083-01	PLATE, STOP SUPPORT
347	9-982-084-01	SPRING, TENSION
348	9-982-085-01	IDLER ASSY
349	9-982-086-01	ARM, PAUSE
350	9-982-087-01	GEAR, IDLER
351	9-982-088-01	PLATE, BUFFER
352	9-982-089-01	SPRING, TORSION
353	9-982-090-01	WASHER, PLASTIC
354	9-982-091-01	PLATE, CAM
355	9-982-092-01	BASE, HEAD
356	9-982-093-01	SPACER, HEAD
357	9-982-094-01	SPRING, TORSION
358	9-982-095-01	SPRING, TENSION
359	9-982-096-01	SPRING, COMPRESSION
360	9-982-097-01	SPRING, TORSION
361	9-982-098-01	ROLLER, GUIDE; HEAD BASE
362	9-982-099-01	SPRING, PLATE
363	9-982-100-01	SPRING, TENSION
364	9-982-101-01	SPRING, TORSION
365	9-982-102-01	PINCH ROLLER ASSY
366	9-982-103-01	SPINDLE ASSY, SUPPLY-REEL
367	9-982-104-01	RETAINER, PLASTIC
368	9-982-105-01	SPRING, COMPRESSION
369	9-982-106-01	SPINDLE ASSY, TAKE-UP
370	9-982-107-01	SPRING, COMPRESSION
371	9-982-108-01	CLUTCH
372	9-982-109-01	FELT, FRICTION
373	9-982-110-01	PLATE, PAUSE-LOCK
374	9-982-111-01	SPRING, TORSION
375	9-982-112-01	CYLINDER ASSY
376	9-982-113-01	LEVER, RECORD SWITCH
377	9-982-114-01	LEVER, PAUSE
378	9-982-115-01	SPRING, TENSION
379	9-982-116-01	LEVER, RECORD
380	9-982-117-01	LEVER, REWIND
381	9-982-118-01	SPRING, TENSION
382	9-982-119-01	LEVER, FORWARD
383	9-982-120-01	LEVER, FAST-FORWARD
384	9-982-121-01	PLATE, BRAKE
385	9-982-122-01	SPRING, TORSION
386	9-982-123-01	RUBBER, BRAKE
387	9-982-124-01	CAM ASSY, SHUT-OFF
388	9-982-125-01	SPRING, COMPRESSION
389	9-982-126-01	ARM, SHUT-OFF DETECTION
390	9-982-127-01	RETAINER, PLASTIC

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- MMH : mH, UH : μH

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

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- In each case, U : μ, for example: UA....: μA...., UPA....: μPA...., UPC....: μPC, UPD....: μPD....

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MECHANISM SECTION

No.	Part No.	Description
391	9-982-128-01	SPRING, TENSION
392	9-982-129-01	ARM (A), SHUT-OFF DETECTION
393	9-982-130-01	ARM (B), SHUT-OFF DETECTION
394	9-982-131-01	ARM (C), SHUT-OFF DETECTION
395	9-982-132-01	SPRING, TORSION
396	9-982-133-01	SPRING, TORSION
397	9-982-134-01	GEAR, WORM
398	9-982-135-01	WASHER, PLASTIC
399	9-982-136-01	LEVER, STOP
400	9-982-137-01	PLATE ASSY, LOCK
401	9-982-138-01	SPRING, TENSION
402	9-982-139-01	ARM, FUNCTION-LEVER
403	9-982-140-01	SPRING, COMPRESSION
404	9-982-141-01	PLATE ASSY, SLIDE
405	9-982-142-01	SPACER, PLATE
406	9-982-143-01	PLATE ASSY, SUB
407	9-982-144-01	GEAR, ASSIST
408	9-982-145-01	SPRING, TORSION
409	9-982-146-01	LEVER (A), ASSIST-GEAR START
410	9-982-147-01	ARM ASSY, TENSION
411	9-982-148-01	SPRING, TORSION
412	9-982-149-01	SPRING, TENSION
413	9-982-150-01	CUSHION, MOTOR
414	9-982-151-01	SCREW, MOTOR
415	9-982-152-01	FLYWHEEL
416	9-982-153-01	GEAR, FLYWHEEL
417	9-982-154-01	WASHER, PLASTIC
418	9-982-155-01	SPRING, COMPRESSION
419	9-982-156-01	BELT, DRIVE
420	9-982-157-01	BELT, TENSION
421	9-982-158-01	BELT, WORM-GEAR
422	9-982-159-01	PLATE (R), SIDE
423	9-982-160-01	PLATE (M) ASSY, THRUST
424	9-982-161-01	PLATE, THRUST
425	9-982-162-01	LEVER, SLIDE-SWITCH
426	9-982-163-01	HOLDER, FUNCTION-LEVER
427	9-982-164-01	LEVER, FUNCTION
428	9-982-165-01	SEE-SAW PLATE, FUNCTION-LEVER
429	9-982-166-01	SPRING, COMPRESSION
430	9-982-167-01	PLATE, RECORD-LINKAGE
431	9-982-168-01	SPRING, CASSETTE-RETAINING
432	9-982-169-01	PLATE, BRAKE SUB
433	9-982-170-01	LEVER (B), ASSIST-GEAR START
434	9-982-171-01	CLAMP, CORD
435	9-982-173-01	PULLEY, MOTOR
436	9-982-181-01	WASHER, PLASTIC
437	9-982-182-01	SCREW +K 2.6X6
438	9-982-183-01	SCREW +P 2X11

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	.....	
502	9-1-508-814-00	14MM BASE POST
503	.....	
504	.....	
505	9-1-535-114-00	TERMINAL
506	9-1-535-117-00	TERMINAL
507	.....	
508	.....	
509	1-536-544-00	TERMINAL, ANTENNA (3P)
510	1-536-698-00	TERMINAL BOARD 4P
511	1-548-563-11	COUNTER, TAPE
512	1-551-628-00	CORD, POWER
513	9-1-606-580-00	PC BOARD, MAIN VOL
514	9-1-606-581-00	PC BOARD, HEADPHONE
515	9-1-606-582-00	PC BOARD, FUNCTION SW
516	9-1-606-583-00	PC BOARD, LED
517	9-1-606-584-00	PC BOARD, PS.SW
518	9-1-606-585-00	PC BOARD, MIC
519	9-A-4351-296-A	MOUNTED PCB, TUNER
520	9-A-4409-565-A	MOUNTED PCB, RECORD/PLAYBACK
521	9-A-4409-652-A	MOUNTED PCB, POWER
522	.....	
523	1-606-477-11	PC BOARD, LAMP
524	9-1-518-493-00	LAMP, PILOT (WITH PC BOARD)
BPF101	1-231-313-00	BANDPASS FILTER
C102	1-161-255-00	CERAMIC 4.7PF 10% 50V
C104	1-161-251-00	CERAMIC 2.2PF 10% 50V
C107	1-102-883-00	CERAMIC 27PF 5% 50V
C109	1-102-684-00	CERAMIC 8PF 0.5PF 50V
C110	1-102-806-00	CERAMIC 27PF 5% 50V
C111	1-102-684-00	CERAMIC 8PF 0.5PF 50V
C150	1-130-627-00	FILM 0.039MF 5% 50V
C167	1-102-743-00	CERAMIC 3PF 0.25PF 50V
C203	1-130-629-00	FILM 0.056MF 5% 50V
C311	1-129-704-00	FILM 0.0015MF 10% 630V
C320	1-102-116-00	CERAMIC 680PF 10% 50V
C510	1-130-630-00	FILM 0.068MF 5% 50V
C511	1-130-636-00	FILM 0.22MF 5% 50V
C610	1-130-630-00	FILM 0.068MF 5% 50V
C611	1-130-636-00	FILM 0.22MF 5% 50V
C701	1-130-632-00	FILM 0.1MF 5% 50V
C702	1-102-106-00	CERAMIC 100PF 10% 50V
C703	1-102-106-00	CERAMIC 100PF 10% 50V
C706	1-130-636-00	FILM 0.22MF 5% 50V
C708	1-130-636-00	FILM 0.22MF 5% 50V
C801	1-130-632-00	FILM 0.1MF 5% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C802	1-102-106-00	CERAMIC 100PF 10% 50V
C803	1-102-106-00	CERAMIC 100PF 10% 50V
C806	1-130-636-00	FILM 0.22MF 5% 50V
C808	1-130-636-00	FILM 0.22MF 5% 50V
C901	9-1-123-500-00	ELECT 3300MF 20% 25V
C902	9-1-123-499-00	ELECT 2200MF 20% 25V
C909	9-1-102-394-00	CERAMIC 250V
C910	9-1-102-394-00	CERAMIC 250V
C990	9-1-161-749-00	CAP, CERAMIC 10000PF
CF101	1-527-381-00	FILTER, CERAMIC
CF102	1-527-381-00	FILTER, CERAMIC
CFU101	1-404-251-00	TRANSFORMER, IF
CNJ521	1-507-686-00	JACK, PIN 4P; INPUT/REC OUT
CNJ522	1-507-686-00	JACK, PIN 4P; INPUT/REC OUT
CNJ621	1-507-686-00	JACK, PIN 4P; INPUT/REC OUT
CNJ622	1-507-686-00	JACK, PIN 4P; INPUT/REC OUT
CNP101	1-560-603-00	PIN, CONNECTOR 4P
CNP102	1-560-708-00	PIN, CONNECTOR 2P
CNP201	1-560-602-00	PIN, CONNECTOR 3P
CNP301	1-560-711-00	PIN, CONNECTOR 12P
CNP351	1-560-711-00	PIN, CONNECTOR 12P
CNP501	1-560-708-00	PIN, CONNECTOR 2P
CNP502	1-560-604-00	PIN, CONNECTOR 5P
CNP503	1-560-709-00	PIN, CONNECTOR 8P
CNP504	1-560-602-00	PIN, CONNECTOR 3P
CNP505	1-560-607-00	PIN, CONNECTOR 10P
CNP507	1-560-604-00	PIN, CONNECTOR 5P
CNP509	1-560-602-00	PIN, CONNECTOR 3P
CT101	1-151-403-00	CAP, TUNING, POLYETHYLENE
CT102	1-151-403-00	CAP, TUNING, POLYETHYLENE
CT103	1-151-403-00	CAP, TUNING, POLYETHYLENE
CT104	1-151-403-00	CAP, TUNING, POLYETHYLENE
CV101	1-151-403-00	CAP, TUNING, POLYETHYLENE
CV102	1-151-403-00	CAP, TUNING, POLYETHYLENE
CV103	1-151-403-00	CAP, TUNING, POLYETHYLENE
CV104	1-151-403-00	CAP, TUNING, POLYETHYLENE
D101	8-719-815-55	DIODE 1S1555
D201	8-719-815-55	DIODE 1S1555
D202	8-719-901-52	DIODE SLP151B
D203	8-719-902-51	DIODE SLP251B
D301	8-719-815-55	DIODE 1S1555
D302	8-719-200-02	DIODE 10E-2
D501	8-719-815-55	DIODE 1S1555
D502	8-719-815-55	DIODE 1S1555
D503	8-719-815-55	DIODE 1S1555
D504	8-719-815-55	DIODE 1S1555
D901	9-8-719-502-20	DIODE S2VB20
D902	9-8-719-200-02	DIODE 10E-2

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D903	9-8-719-200-02	DIODE 10E-2
D907	8-719-101-89	DIODE RD15EL2
F901	9-1-532-402-XX	FUSE, GLASS TUBE
HE	9-982-175-01	HEAD, ERASE (86M0103)
HRP	9-982-174-01	HEAD, RECORD/PLAYBACK (4432008)
IC101	8-751-680-01	IC CX-168
IC201	8-759-900-36	IC BA1351
IC301	8-759-932-80	IC BA328
IC501	8-759-932-80	IC BA328
IC502	8-759-900-35	IC IR2E18
IC701	8-759-313-97	IC HA1397
IC801	8-759-313-97	IC HA1397
J531	1-507-685-21	JACK, LARGE TYPE
J901	1-507-694-00	JACK
JH1	9-1-535-149-11	WIRE (30.0MM)
JH2	9-1-535-149-11	WIRE (30.0MM)
L101	9-1-420-884-00	COIL, AIR CORE
L102	1-405-995-00	COIL, FM OSC (W)
L103	9-1-420-840-00	COIL
L107	1-401-961-00	ANTENNA, FERRITE-ROD (MW)
L111	1-404-327-00	TRANSFORMER, DISCRIMINATOR
L113	1-405-996-00	COIL, OSC
L201	1-407-963-00	MICRO INDUCTOR 15MMH
L301	1-408-262-00	MICRO INDUCTOR 27MMH
L302	1-406-003-00	TRANSFORMER, OSCILLATOR
L312	1-408-209-00	MICRO INDUCTOR 1MMH
L401	1-408-262-00	MICRO INDUCTOR 27MMH
L701	9-1-420-872-00	COIL, AIRE CORE
L801	9-1-420-872-00	COIL, AIRE CORE
M	9-982-172-01	MOTOR
PL501	1-518-504-11	LAMP, PILOT
PL502	1-518-504-11	LAMP, PILOT
PL503	1-518-504-11	LAMP, PILOT
PL504	1-518-504-11	LAMP, PILOT
PL505	1-518-504-11	LAMP, PILOT
PL506	1-518-504-11	LAMP, PILOT
PL507	1-518-504-11	LAMP, PILOT
PL508	1-518-504-11	LAMP, PILOT
PL509	1-518-504-11	LAMP, PILOT
PL510	1-518-358-31	LAMP, PILOT
PL511	1-518-491-00	LAMP, PILOT
Q101	8-729-671-14	TRANSISTOR 2SC710-14
Q102	8-729-671-14	TRANSISTOR 2SC710-14
Q103	8-729-671-14	TRANSISTOR 2SC710-14
Q104	8-729-671-14	TRANSISTOR 2SC710-14
Q105	8-729-606-32	TRANSISTOR 2SC2603
Q106	8-729-606-32	TRANSISTOR 2SC2603

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- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q301	8-729-663-47	TRANSISTOR 2SC1364
Q310	8-729-663-47	TRANSISTOR 2SC1364
Q311	8-729-663-47	TRANSISTOR 2SC1364
Q312	8-729-177-43	TRANSISTOR 2SD774
Q401	8-729-663-47	TRANSISTOR 2SC1364
Q501	8-729-606-32	TRANSISTOR 2SC2603
Q502	8-729-606-32	TRANSISTOR 2SC2603
Q503	8-729-606-32	TRANSISTOR 2SC2603
Q504	8-729-606-32	TRANSISTOR 2SC2603
Q505	8-729-606-32	TRANSISTOR 2SC2603
Q506	8-729-606-32	TRANSISTOR 2SC2603
Q507	8-729-606-32	TRANSISTOR 2SC2603
Q508	8-729-606-32	TRANSISTOR 2SC2603
Q509	8-729-606-32	TRANSISTOR 2SC2603
Q510	8-729-606-32	TRANSISTOR 2SC2603
Q511	8-729-606-32	TRANSISTOR 2SC2603
Q531	8-729-665-47	TRANSISTOR 2SC1362
Q601	8-729-606-32	TRANSISTOR 2SC2603
Q602	8-729-606-32	TRANSISTOR 2SC2603
Q603	8-729-606-32	TRANSISTOR 2SC2603
Q604	8-729-606-32	TRANSISTOR 2SC2603
Q701	8-729-663-47	TRANSISTOR 2SC1364
Q801	8-729-663-47	TRANSISTOR 2SC1364
Q901	8-729-288-02	TRANSISTOR 2SD880
Q902	8-729-288-02	TRANSISTOR 2SD880
Q903	8-729-663-47	TRANSISTOR 2SC1364
Q904	8-729-663-47	TRANSISTOR 2SC1364
R117	1-244-921-00	CARBON 100K 5% 1/2W
R129	△ 1-217-393-00	FUSIBLE 33 5% 1/4W F
R322	△ 1-212-950-00	FUSIBLE 4.7 5% 1/2W F
R579	△ 1-212-857-00	FUSIBLE 10 5% 1/4W F
R582	△ 1-217-393-00	FUSIBLE 33 5% 1/4W F
R706	△ 1-212-857-00	FUSIBLE 10 5% 1/4W F
R707	△ 1-212-958-00	FUSIBLE 10 5% 1/2W F
R806	△ 1-212-857-00	FUSIBLE 10 5% 1/4W F
R807	△ 1-212-958-00	FUSIBLE 10 5% 1/2W F
R901	△ 1-213-036-00	FUSIBLE 1 5% 1W F
R902	△ 1-212-934-00	FUSIBLE 1 5% 1/2W F
R910	△ 1-202-723-00	RES, SOLID 2.2M
RV201	1-226-236-00	RES, ADJ, CARBON 10K
RV301	1-226-434-00	RES, ADJ, CARBON 100K
RV401	1-226-434-00	RES, ADJ, CARBON 100K
RV501	1-228-553-00	RES, VAR, CARBON 100K/100K
RV502	1-228-553-00	RES, VAR, CARBON 100K/100K
RV503	1-228-553-00	RES, VAR, CARBON 100K/100K

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV504	1-228-554-00	RES, VAR, CARBON 100K
RV505	1-228-230-21	RES, VAR, CARBON 50K/50K
RV601	1-228-553-00	RES, VAR, CARBON 100K/100K
RV602	1-228-553-00	RES, VAR, CARBON 100K/100K
RV603	1-228-553-00	RES, VAR, CARBON 100K/100K
RV605	1-228-230-21	RES, VAR, CARBON 50K/50K
S1	1-554-030-00	SWITCH, PUSH
S301	1-554-033-00	SWITCH, SLIDE
S302	9-982-176-01	SWITCH, LEAF; MOTOR
S303	9-982-179-01	SWITCH, LEAF; ASSIST
S304	9-982-180-01	SWITCH, LEAF; PAUSE
S305	9-982-177-01	SWITCH, LEAF; FORWARD
S306	9-982-178-01	SWITCH, LEAF; TAPE SELECT
S307	9-982-176-01	SWITCH, LEAF; RECORD
S308	1-516-870-00	SWITCH, SLIDE
S502	1-553-739-00	SWITCH, KEY BOARD
S503	1-553-739-00	SWITCH, KEY BOARD
S901	△ 1-553-319-00	SWITCH, PUSH (AC POWER)
T901	△ 1-447-265-00	TRANSFORMER, POWER

ELECTROLYTIC CAPACITORS

RATING → : Use the high voltage rated one.						
CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47	→	→	→	→	→	1-121-726-00
1.0	→	→	→	→	→	1-121-391-00
2.2	→	→	→	→	→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	→	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	→
3300	1-121-661-00	1-123-075-00	1-123-071-00	→	→	→

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	→	→	→	→
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	→	1-123-028-00
3.3	1-121-995-00	→	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	→	→
47	1-123-251-00	1-121-919-00	→	→
100	1-123-084-00	→	→	→

CERAMIC CAPACITORS

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00	→	→
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00	→	→
16	1-102-952-00	110	1-102-815-00	→	→	→	→
18	1-102-953-00	120	1-102-816-00	→	→	→	→
20	1-102-958-00	130	1-101-081-00	→	→	→	→

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015	→	1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018	→	1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022	→	1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00	→	→	→
0.0082	1-161-012-00	1-161-050-00	→	→	→
0.01	1-161-013-00	1-161-051-00	→	→	→
0.012	→	1-161-052-00	→	→	→
0.015	1-161-015-00	1-161-053-00	→	→	→

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μH

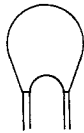
The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

SEMICONDUCTORS

In each case, U : μ, for example:
UA....: μA..., UPA....: μPA..., UPC....: μPC,
UPD....: μPD...

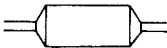
MYLAR CAPACITORS

RATING											
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	—	—
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	—	—
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	—	—
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	—	—
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

RATING → : Use the high voltage rated one.							
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015					→	→	1-131-397-00
0.022					→	→	1-131-398-00
0.033					→	→	1-131-399-00
0.047					→	→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47		—	—	—	1-131-412-00	→	1-131-406-00
0.68		—	—	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0		—	1-131-418-00	—	1-131-413-00	→	1-131-408-00
1.5	—	1-131-421-00	—	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	—	1-131-419-00	—	1-131-414-00	1-131-355-00	1-131-349-00
3.3	—	1-131-422-00	—	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	—	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	—	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	—
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	—			
68	1-131-394-00	1-131-388-00	—	—			
100	1-131-395-00	—	—	—			



TANTALUM CAPACITORS

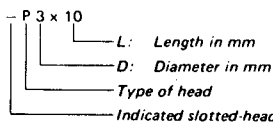
RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			—	—	1-131-262-00	1-131-278-00
0.33			—	—	1-131-263-00	1-131-279-00
0.47			1-131-169-00	—	1-131-264-00	1-131-280-00
0.68			—	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	—	1-131-266-00	1-131-282-00
1.5		1-131-250-00	—	—	1-131-267-00	1-131-283-00
2.2		—	—	1-131-259-00	1-131-268-00	1-131-284-00
3.3		—	1-131-255-00	—	1-131-269-00	—
4.7		1-131-251-00	1-131-171-00	—	1-131-270-00	—
6.8		—	—	1-131-260-00	1-131-271-00	—
10		—	1-131-256-00	—	1-131-272-00	—
15		1-131-252-00	—	1-131-261-00		
22		—	1-131-257-00	—		
33	1-131-176-00	1-131-253-00	1-131-173-00	—		
47	1-131-288-00	1-131-174-00	—	—		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

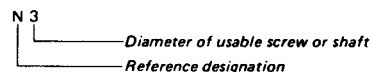
Screw:



Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).

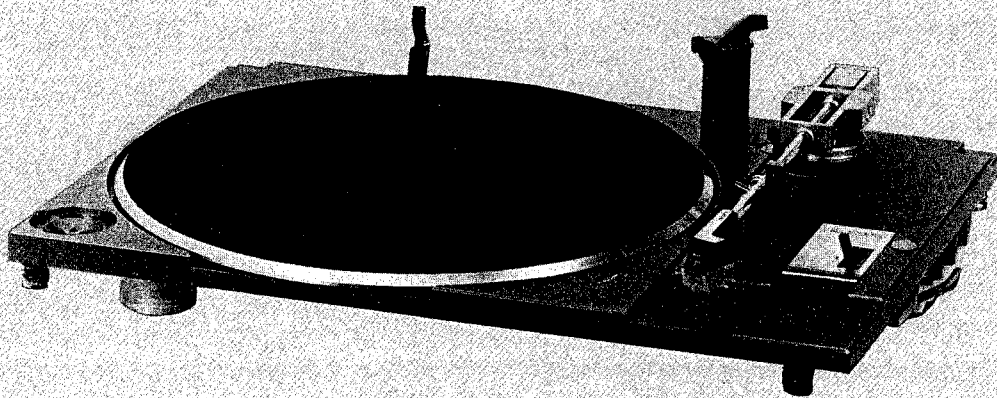
Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

TTS-83



RECORD CHANGER

SPECIFICATIONS

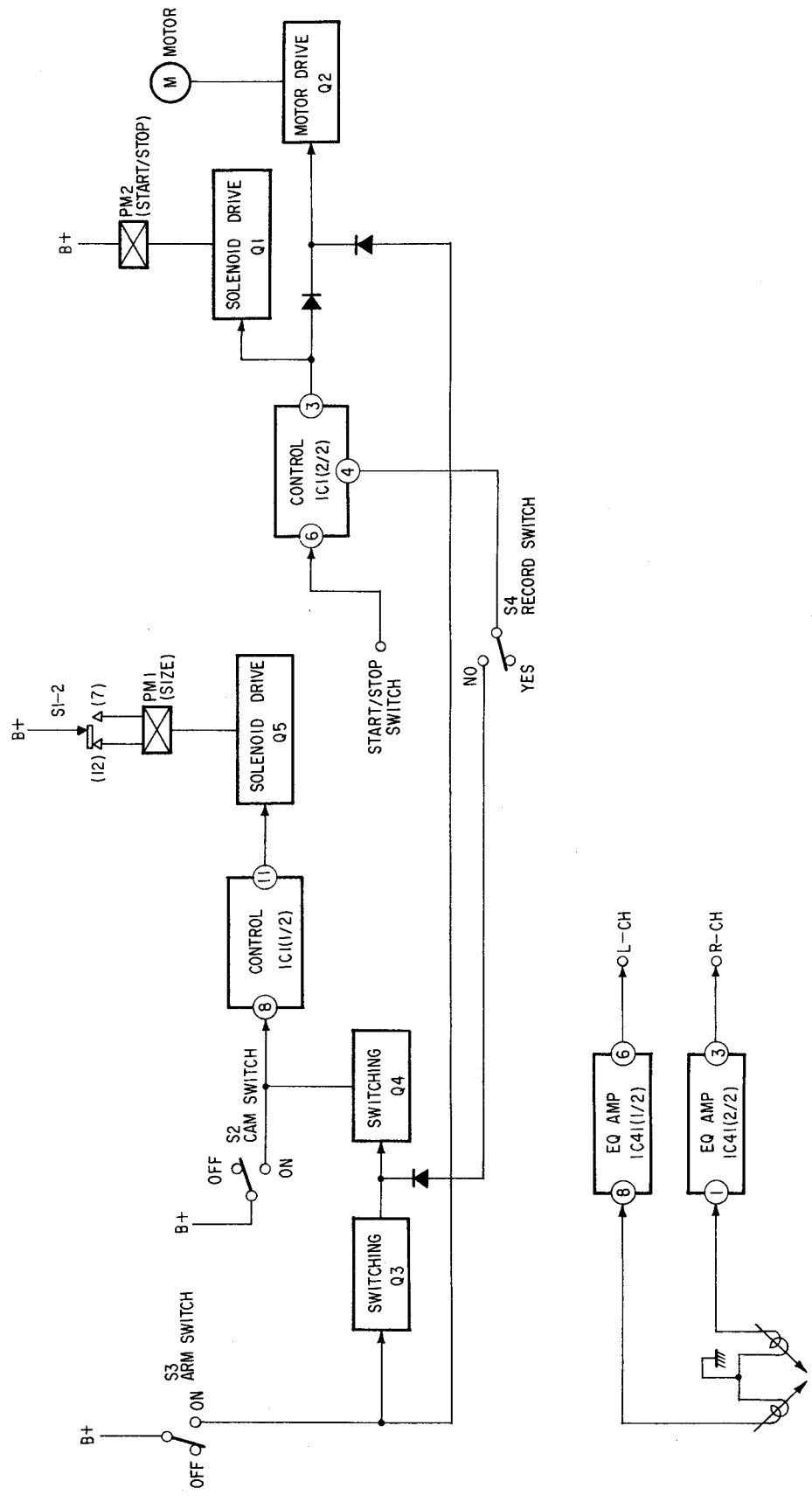
Motor:	DC servo-controlled
Drive System:	Belt drive, fully automatic player
Speed:	33 $\frac{1}{3}$, 45 rpm
Wow and Flutter:	0.08 % WRMS
Cartridge:	VL-38GSA (moving magnet type)
Tracking Force:	2.5 g $\pm$ 0.5 g (2.5 g recommended)
Stylus:	ND-138G (Conical, 0.5 mil diamond)



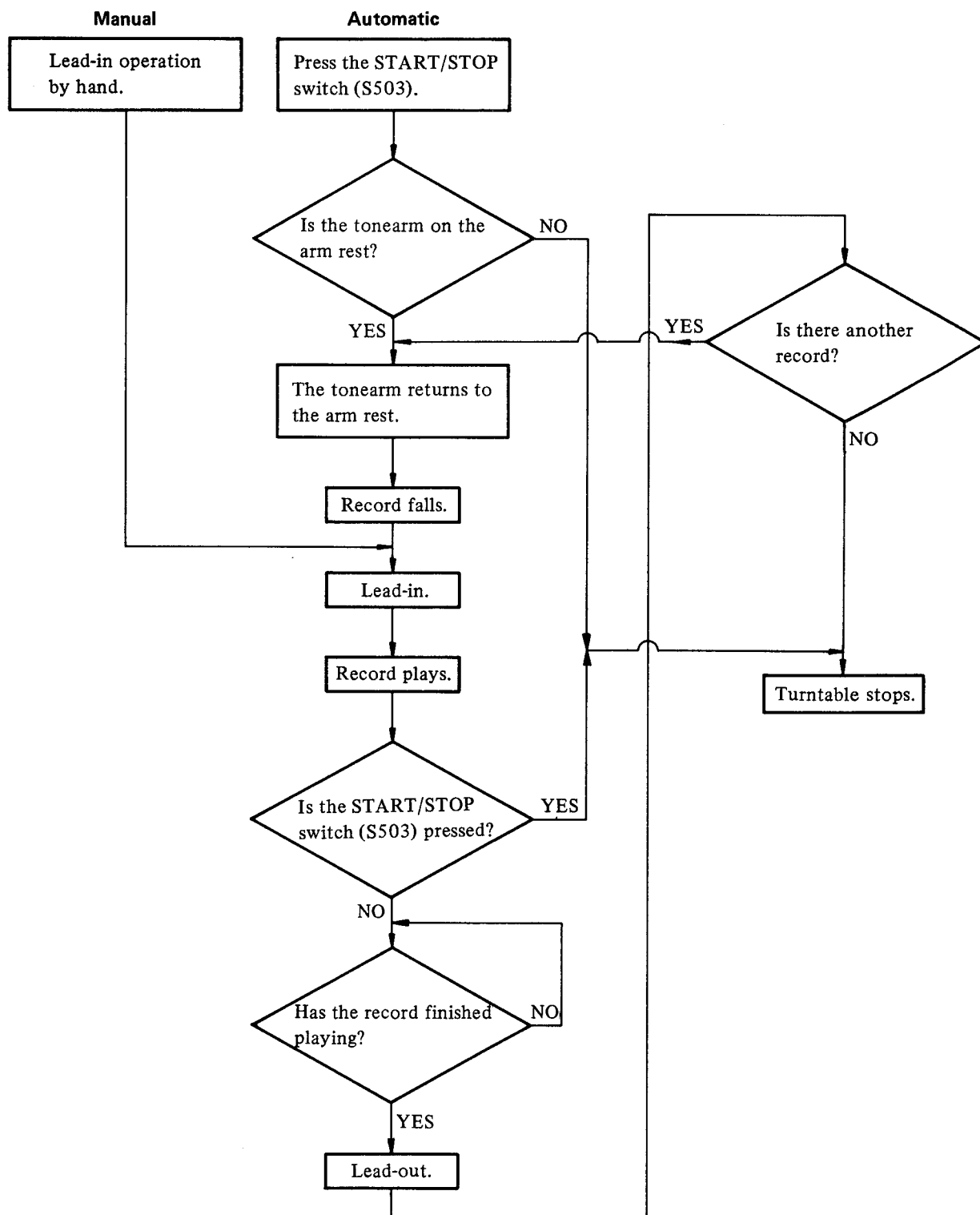
SONY[®]
SERVICE MANUAL

SECTION 1 OUTLINE

1-1. BLOCK DIAGRAM



1-2. OPERATION FLOW CHART



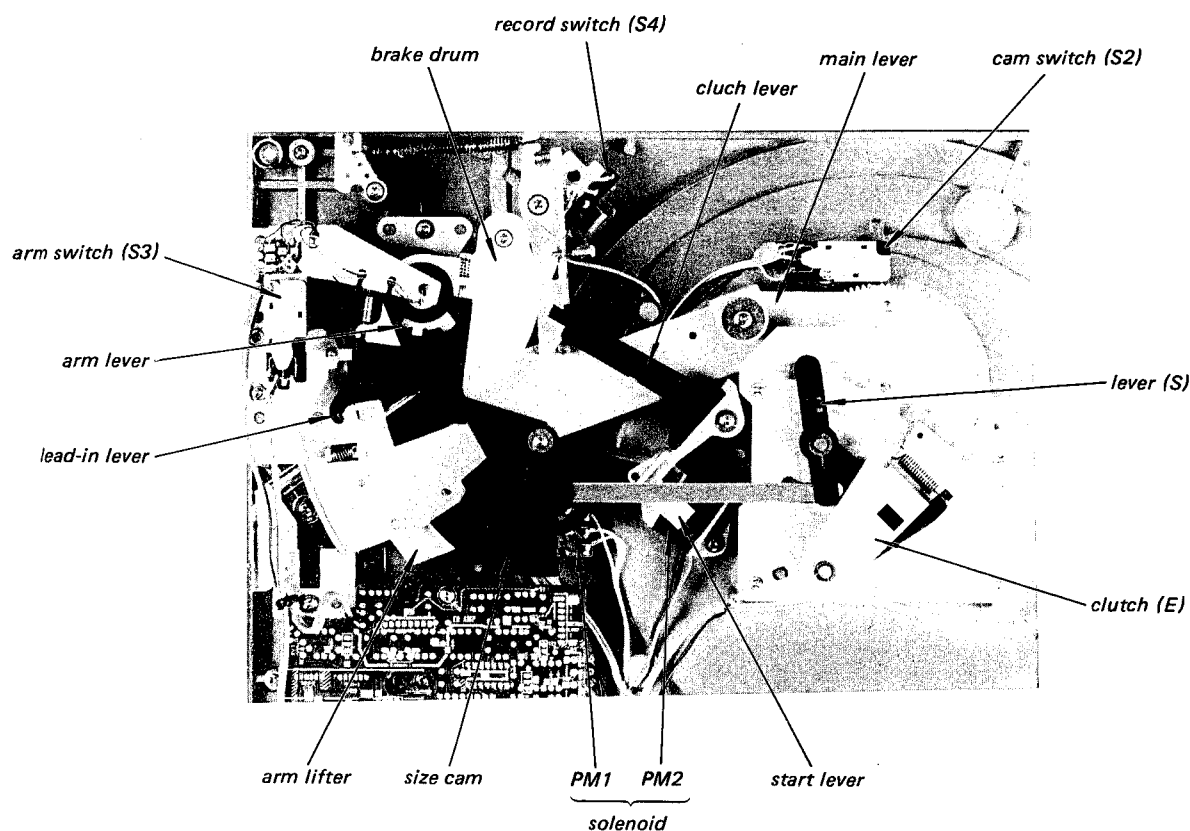
1-3. FEATURES

- Fully automatic changer which can play up to five records of the same size and speed in sequence, as well as single play.
- Automatic start and stop with the press of a button, or manual lead-in at any desired point, plus automatic end-of-record return, and a repeat function.
- Tonearm can be moved freely up or down with a lever or by hand during any operating mode.

1-4. MECHANICAL OPERATION

1-4-1. Auto-changer Operation

Fig. 1-1 shows the names of the turntable section.



- 1) When the START/STOP switch (S503) is pushed, the motor starts to rotate due to the action of the circuitry. At the same time, solenoid (PM2) is activated to move the start lever as shown in Fig. 1-2. (The magnet inside the start lever is moved in the direction of arrow **A** when the current begins to flow in solenoid.)

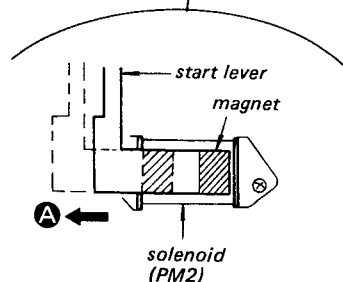
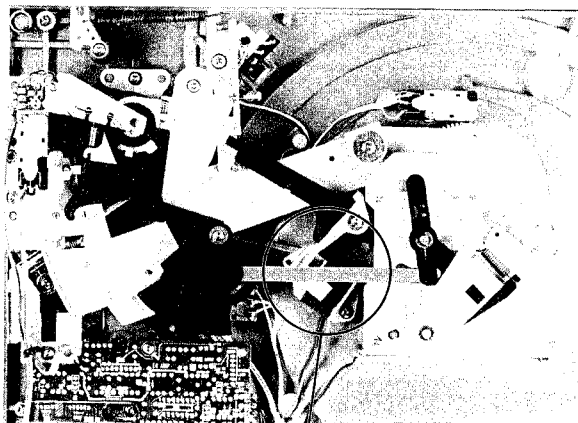


Fig. 1-2

- 2) The start lever moves the clutch lever. When the clutch lever moves, the clutch lever (D) is moved in the direction of arrow **B** and touches the projecting part of the turntable pivot. (Fig. 1-3)
- 3) The rotation of the motor is transmitted to the turntable by the drive belt and the turntable rotates the turntable pivot. The clutch lever (D) is pushed by the projecting part of the turntable pivot, and the drive gear begins to rotate in the direction of arrow **C**. (Fig. 1-3)

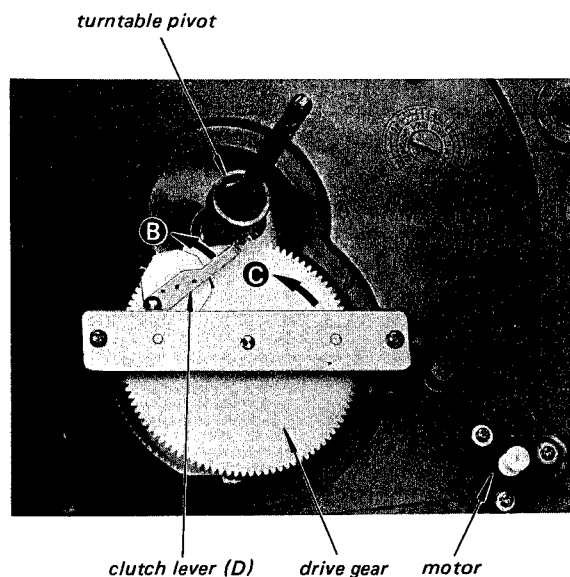
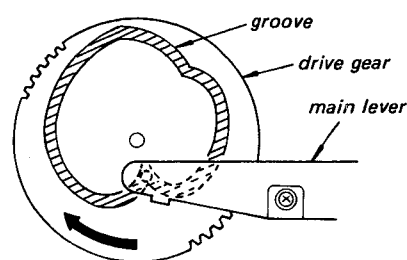
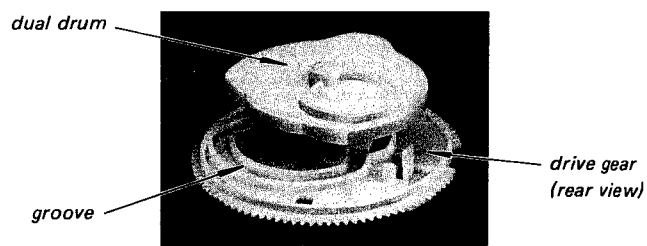
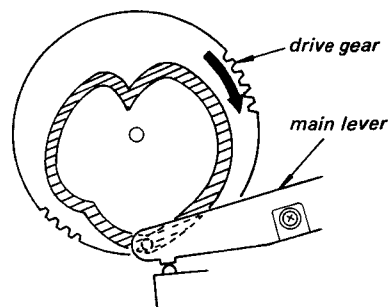


Fig. 1-3

- 4) The structure of the drive gear is shown in Fig. 1-4. There is a heart-shaped groove in the bottom of the drive gear. The main lever is guided as shown in Fig. 1-3 by a heart-shaped groove in the drive gear.



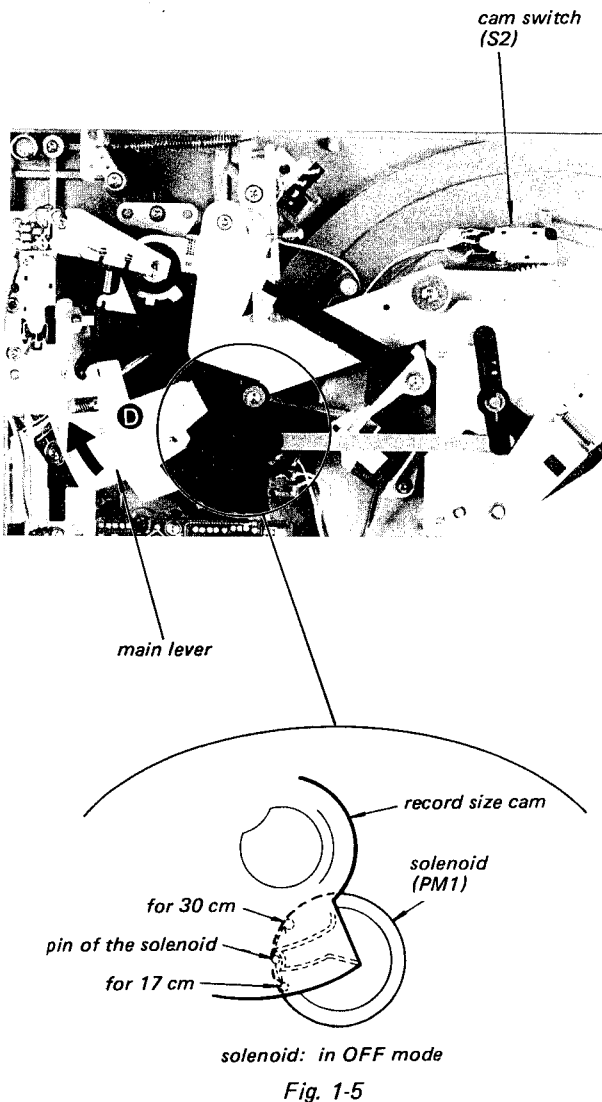
• When the tonearm is returned to the arm rest.



• In START or STOP mode

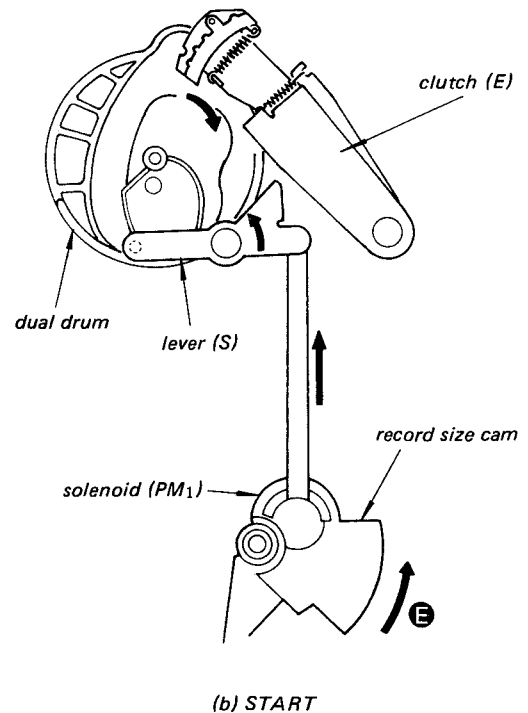
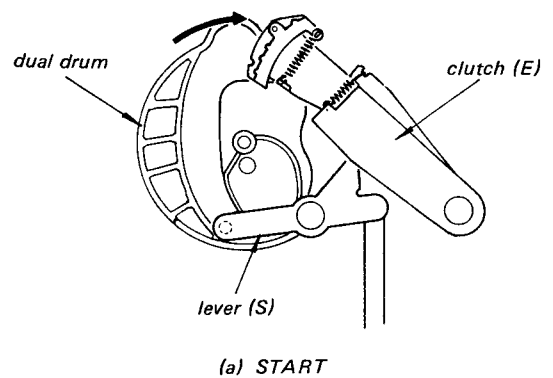
Fig. 1-4

- 5) The main lever is moved by the drive gear in the direction of arrow **D** in Fig. 1-5. When the main lever begins to move, the main cam switch (S4) turns ON and the current flows in the solenoid (PM2). However, the record size cam hinders the pin of solenoid, so the solenoid does not move.



- 6) The dual drum is jointed with the drive gear as shown in Fig. 1-4 and it rotates in the same way as the drive gear. The dual drum moves the lever (S) and the clutch (E) as shown in Fig. 1-6 (a). The lever (S) moves the record size cam, selecting either 17 cm or 30 cm.

- 7) The record size cam is moved by the lever (S) in the direction of arrow **E** as shown in Fig. 1-6 (b). Therefore, a pin of the solenoid is released from the record size cam and moves in the direction of either 17 cm or 30 cm position.
- 8) Next, the lever (S) moves the record size cam in the direction of arrow **F** as shown in Fig. 1-6 (c) and the record size cam is stopped by the pin of the solenoid as shown in Fig. 1-6 (d).



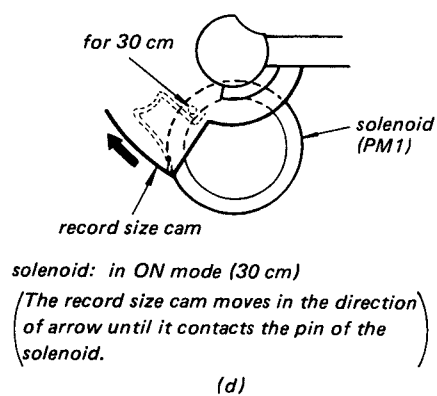
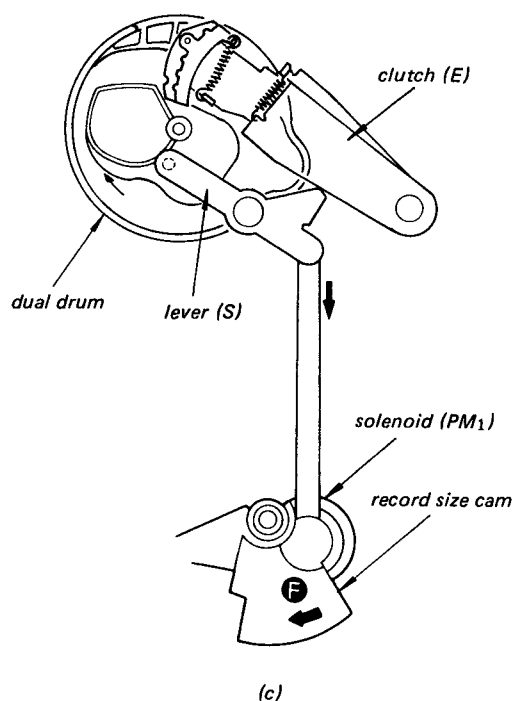


Fig. 1-6

- 9) The main lever is moved by the drive gear in the direction of arrow ① as shown in Fig. 1-5. The clutch (C) is attached to the end of the main lever and pushes the lead-in lever. So, the tonearm returns to the arm rest. Now, even when the lead-in lever stops moving, the main lever continues to move by the drive gear. Due to the limiter mechanism in the clutch (C), the clutch (C) is released from the lead-in lever as shown in Fig. 1-7. When it touches the reset plate (L), the clutch (C) is returned to its original position.

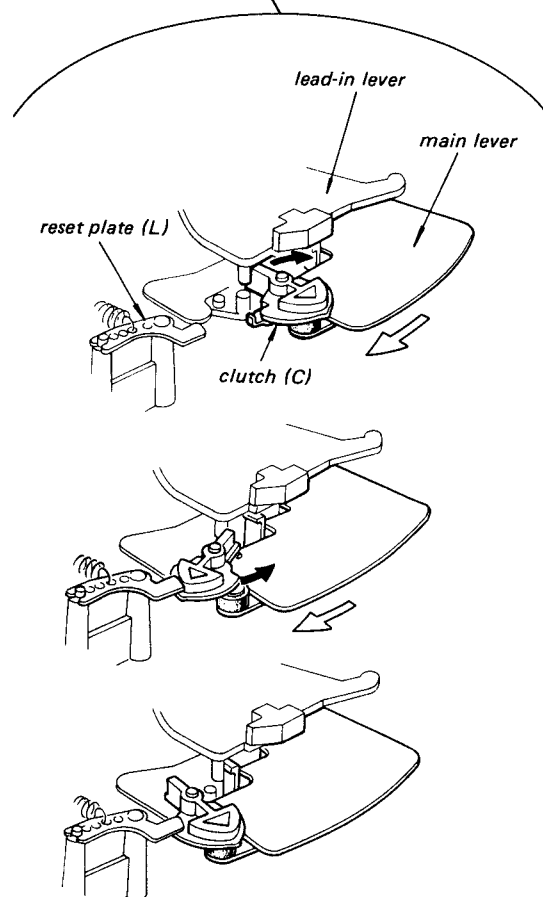
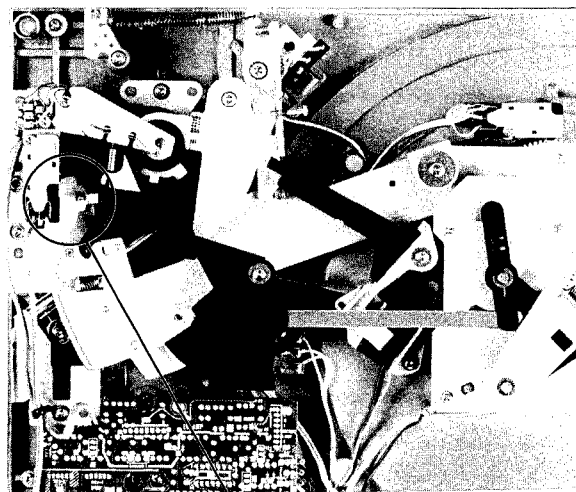


Fig. 1-7

- 10) The main lever begins to move in the opposite direction, when the clutch (C) pushes the lead-in lever and the record size reset lever as shown in Fig. 1-8.

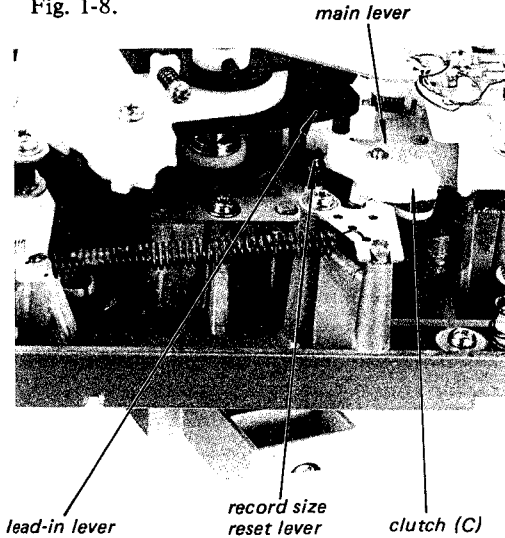


Fig. 1-8

- 12) The tonearm lowers on the record and the record begins to play, because the lifter plate attached to the main lever stops pushing the arm lifter pipe (A) as shown in Fig. 1-10.

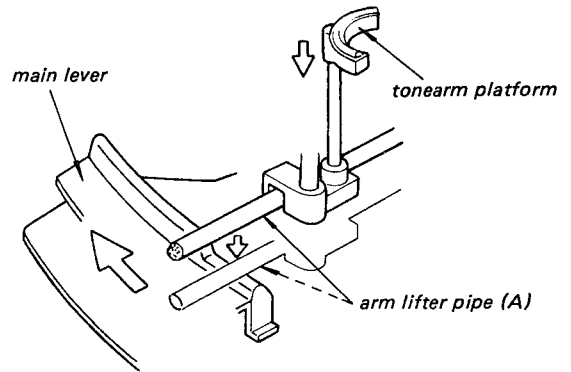


Fig. 1-10

- 11) When the lead-in lever begins to move by the clutch (C), the arm switch (S3) turns ON. The lead-in lever moves until it contacts to the record size cam. The main lever moves further in the direction of arrow **G** as shown in Fig. 1-9 and clutch (C) is released from the lead-in lever. The main lever pushes the record size cam, which is returned to the position in START mode.

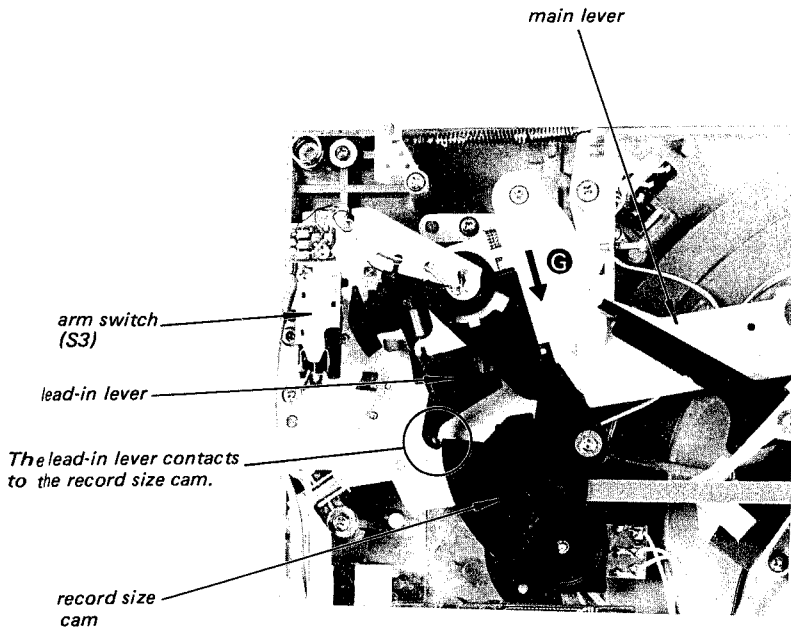
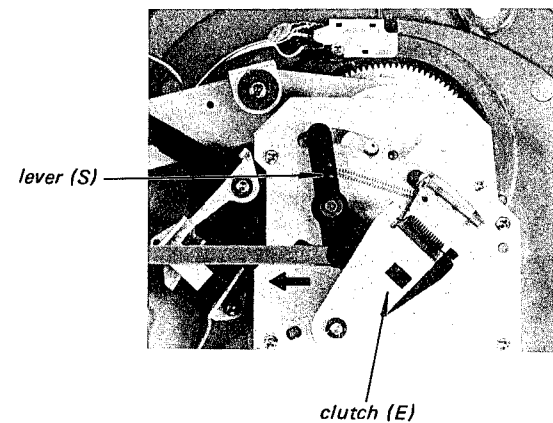


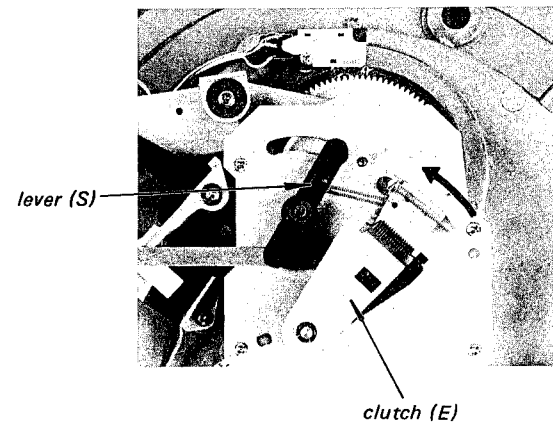
Fig. 1-9

1-4-2. Automatic Record Drop

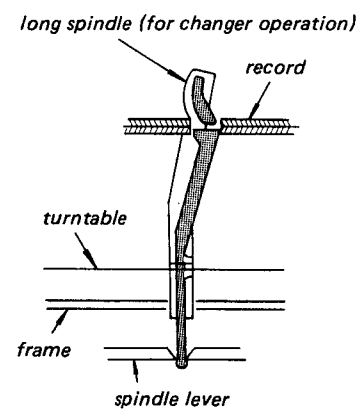
- 1) Fig. 1-11 and 1-12 show the action of the clutch (E) and lever (S).
- 2) The long spindle for changer operation is inserted into this clutch (E) and is moved by it as shown in Fig. 1-13.
- 3) When the tonearm comes to the end of the record, the tonearm returns to the arm rest, and when there is another record, it is fallen automatically on the turntable (record switch is remained OFF). When there is none, the record switch (S4) turns ON and current does not flow in the solenoid (PM1).
- 4) If there is a record, record switch (S4) is remained OFF and after the record is set automatically, lead-in operation is performed.



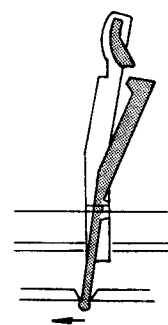
• In START mode
Fig. 1-11



• When the tonearm is returned to the arm rest.
Fig. 1-12

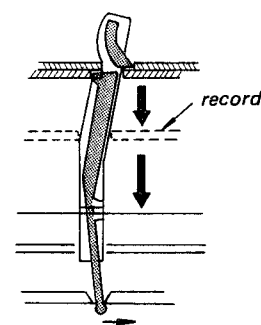


• In START or STOP mode



• Detection:

- a) When there is not record, the spindle lever moves as shown above.
- b) When there is record, the spindle lever can not move.



• The record is fallen.

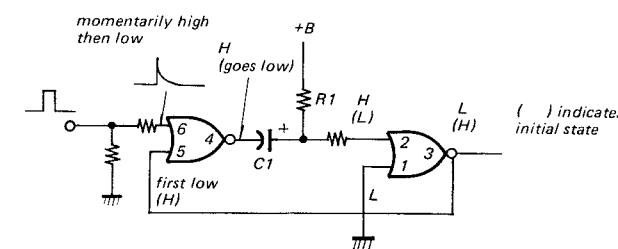
Fig. 1-13

1-5. CIRCUIT DESCRIPTION

TTS-83 Circuit Description

The IC1 used in this set is a NOR circuit IC. The logical output is shown below.

①	②	③
H	H	L
H	L	L
L	H	L
L	L	H



(When pulse is momentarily applied to ⑥, ④ goes low and charging of C1 begins through R1. Thus ② goes from high to low and ③ goes high. This causes ⑤ to go high, and even when ⑥ is low, ④ continues low. When charging is completed, ② goes high, ③ goes low and ⑤ goes low. Thus, ④ goes high.)

Start

When the START/STOP switch is pressed, IC1-3 pin ⑥ goes high momentarily. This causes pin ④ to go low, so C2 charging begins via R6.

Until charging is completed, IC1-4 pin ② remains low. During this time, pin ③ goes high, turning on Q1, and operating PM2 (START/STOP plunger). Also, simultaneously, Q2 is turned on and the motor rotates.

When PM2 turns on, the drive gear and turntable pivot gear engage, and the drive gear begins to rotate. Then, S2 is turned on mechanically.

This causes current to flow to the base of Q2 via S2 → D2, and Q2 remains on.

When S2 goes on, voltage is applied to IC1-1 pin ⑧ via C3, R19, and pin ⑩ goes low.

When pin ⑩ goes low, C4 is charged via R21. During this time, IC1-2 pin ⑪ goes high, so Q5 turns on, and PM1 turns on.

When PM1 turns on, the tonearm leaves the arm rest mechanically, moves over the record, and record playing begins.

If there is no record when S2 is on, S4 is at the NO side, so Q4 turns on so that voltage is not applied to IC1-1 pin ⑧. Therefore PM1 does not operate, and the tonearm does not move.

If START/STOP switch is pressed during record playing:

IC1-3 pin ⑥ goes high, resulting in the same operation as for START. PM2 operates, the drive gear and turntable pivot gear engage, and the operation is then the same as for auto return, and the tonearm returns to the arm rest. As a result of this mechanical operation, S2 turns off, and the motor rotation ceases.

Changer Operation

When record playing is completed, the tonearm returns to the arm rest, and S2 turns off. At this time, S3 also turns off, and Q3 is also off.

When a record is present at this time, S4 is at the YES side, so Q4 is off.

When S2 turns off, voltage is applied to IC1-1 pin ⑧ via C10, C3 and R19 from B+, and pin ⑩ goes low.

Therefore, PM1 is operated through the same operation as for START. When PM1 operates, the tonearm leaves the arm rest again, mechanically, is led in above the record, and record playing begins.

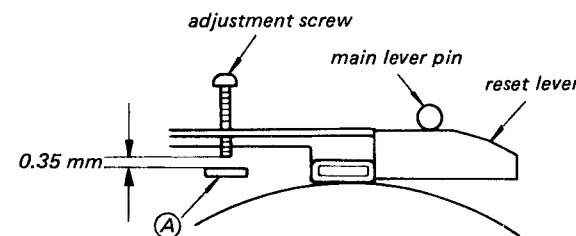
If there is no record, S4 is at the NO side and Q4 is on, so voltage is not applied via C10, C3 to IC1-1 pin ⑧, and PM1 does not operate.

SECTION 2 ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

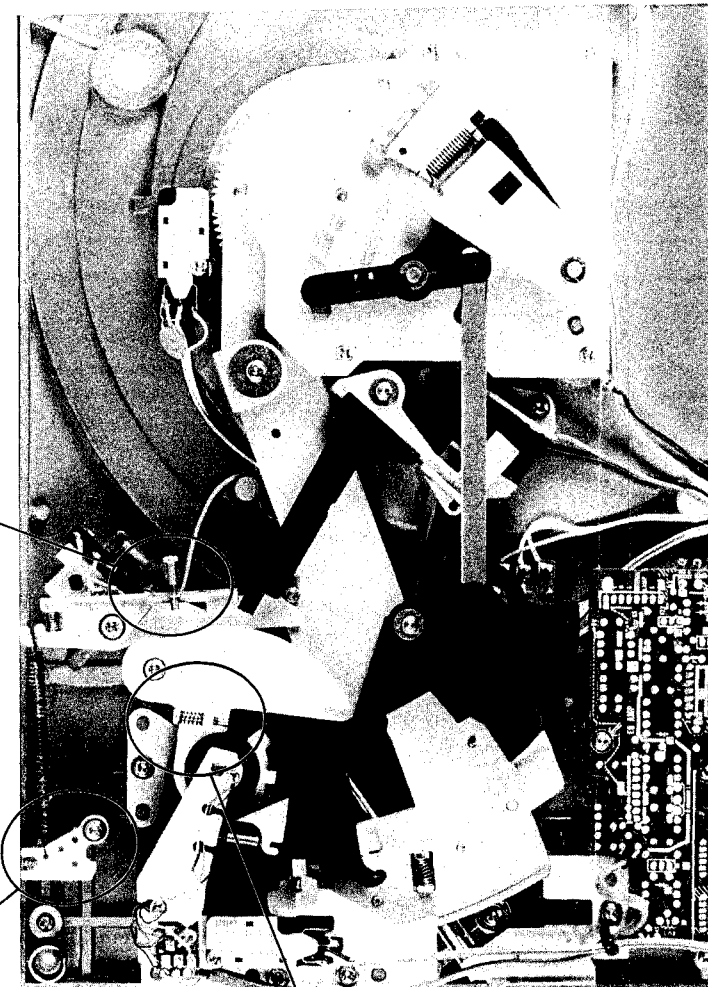
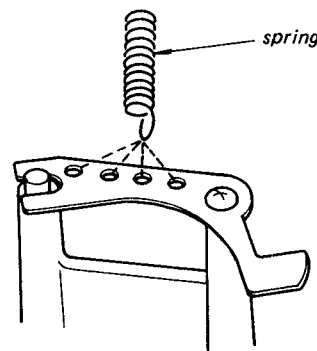
Brake Drum Position Adjustment

1. Rotate the turntable pivot clockwise by hand, rotate the drive gear by engaging the turntable pivot with the drive gear and set the main lever pin as shown below.
2. Turn the adjustment screw clockwise until it contacts to the reset lever (marked (A) portion).
3. Then, turn the adjustment screw counterclockwise about 3/4 turns from the position obtained in step 2.
4. After the adjustment, apply suitable locking compound to the adjustment screw.



Drive Gear Reset Adjustment — STOP mode —

1. Rotate the turntable pivot by hand and slowly rotate the drive gear by engaging the turntable pivot with the drive gear.
2. Confirm that the turntable pivot and the drive gear are not engaged after turning the drive gear one turn.
3. If necessary, change the hooking position of the spring as shown below.



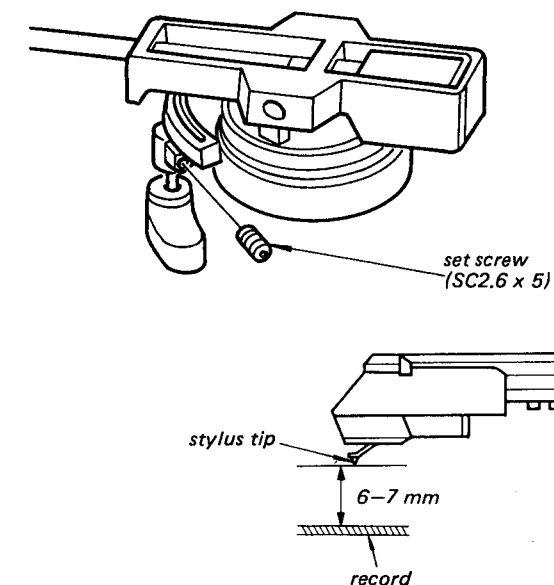
Automatic Return Position Adjustment

1. Place the test record (YFSC-16) on the turntable.
2. Set the stylus on the groove of the record.
3. Turn the adjustment screw so that the tonearm starts to return at count of 14 – 18.
4. After the adjustment, apply suitable locking compound to the adjustment screw.

Stylus Height Adjustment

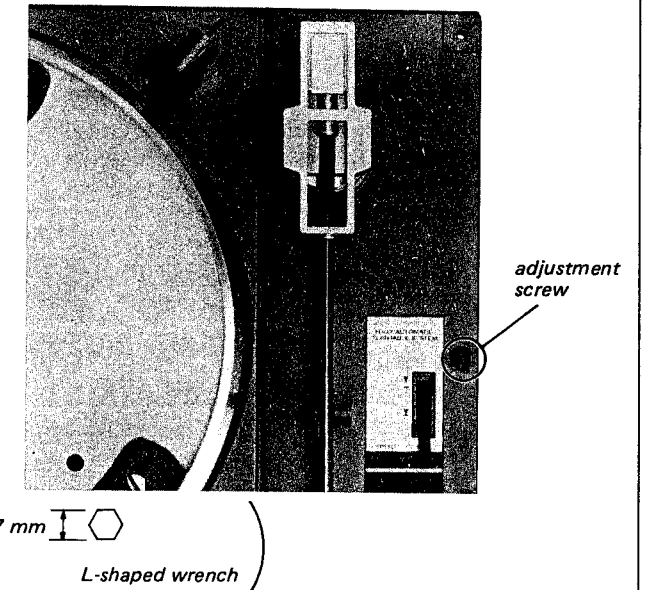
A) Automatic Return Operation

1. Set the cueing lever to the ▽ position.
2. Remove the turntable and rubber mat.
3. Lift up the tonearm by rotating the drive gear. (Rotate the turntable pivot clockwise by hand and rotate the drive gear by engaging the turntable pivot with the drive gear.)
4. Install the turntable and the rubber mat.
5. Place the record on the turntable.
6. Bring the tonearm on the record and confirm that the distance between the stylus tip and the record is 18 mm as shown below.
7. If necessary, adjust the height of the tonearm platform by loosening the set screw.



B) Manual Operation

1. Confirm that the turntable pivot and the drive gear are not engaged.
2. Set the cueing lever to the ▽ position.
3. Bring the tonearm on the record and confirm that the distance between the stylus tip and the record is 18 mm.
4. If necessary, adjust the height of the tonearm platform by turning the adjustment screw.



Stylus Drop-point Adjustment (33 rpm)

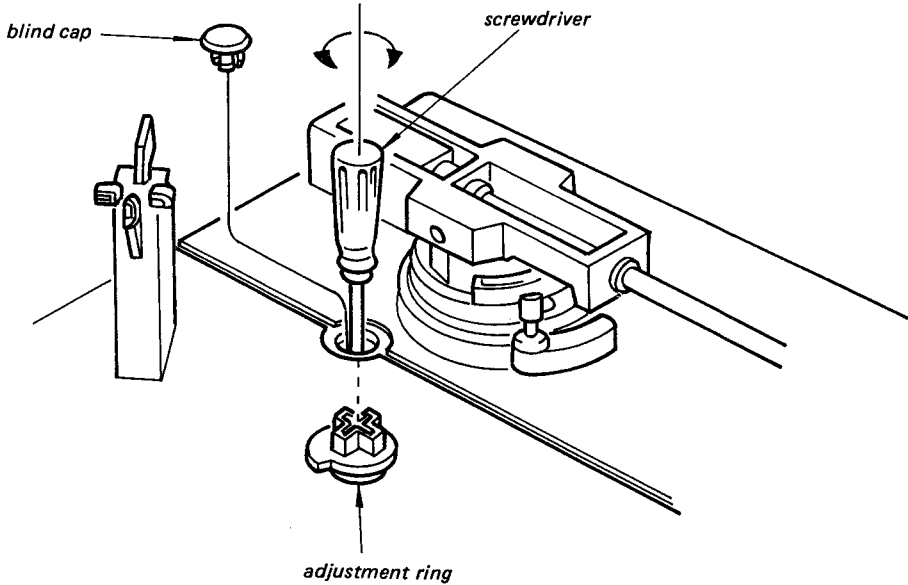
- 1. Remove the blind cap.
- 2. Make sure that the stylus drops on the specified point of the test record.
test record: YFSC-16

Record size	Count of drop-point
30 (12")	7 to 12

- 3. If necessary, insert the screw-driver into the hole and adjust the drop-point by turning the adjustment ring.

To change the drop-point inward:
Turn the adjustment ring slightly clockwise.
(The figure of the drop-point will be large.)

To change the drop-point outward:
Turn the adjustment ring slightly counter-clockwise. (The figure of the drop-point will be small.)



2-2. ELECTRICAL ADJUSTMENT

Turntable Speed Adjustment (Turn the motor adjustable resistor fully counterclockwise.)

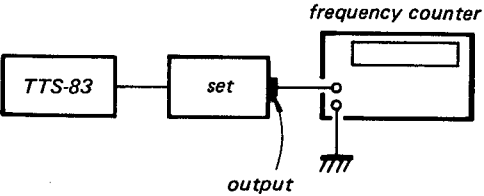
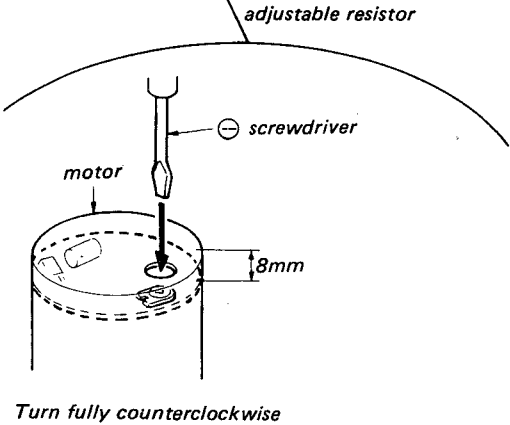
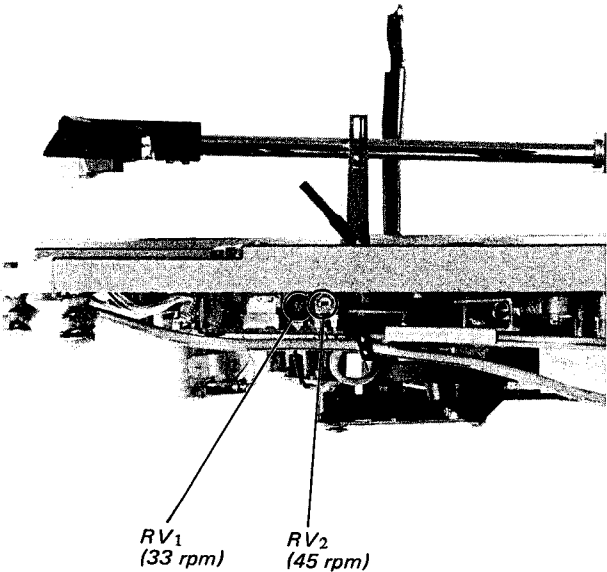
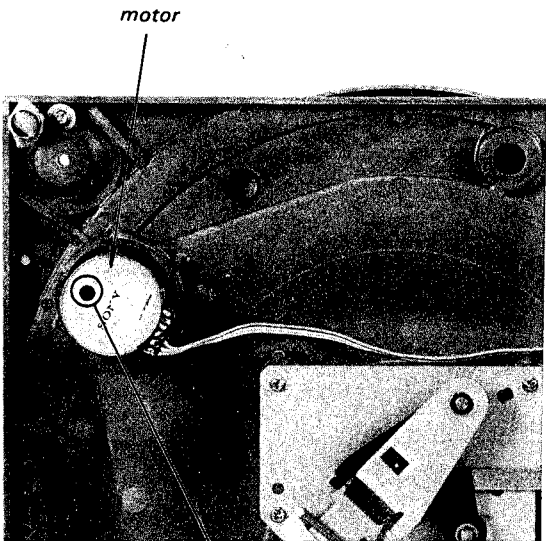
A) Using the Test Record (YFSC-16)

- 1. Set the SPEED switch to 33 position.
- 2. Place the test record (YFSC-16) on the turntable.
- 3. Play the second band of the test record.
- 4. Adjust the RV1 in the motor for specified values on the frequency counter.
- 5. Change the SPEED switch to 45 position.
- 6. Play the second band of the test record.
- 7. Adjust RV2 for specified values on the frequency counter.

Specification:
33 rpm: 2990 – 3010 Hz
45 rpm: 4040 – 4060 Hz

B) Using the Stroboscopic Disc.

- 1. Place the stroboscopic disc on the turntable.
- 2. Adjust the adjustable resistor in the motor for 33 rpm and RV1 for 45 rpm so that the stroboscopic disc appears stationary.



SECTION 3

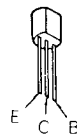
DIAGRAMS

3-1. MOUNTING DIAGRAM

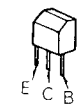
— Conductor Side —

Semiconductor Lead Layouts

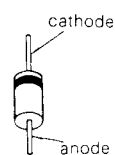
2SC1364



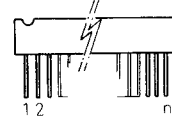
2SD774



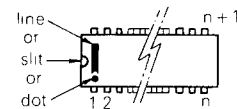
1S1555



BA 328



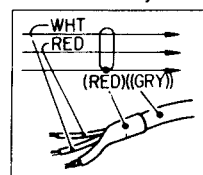
TC4001BP



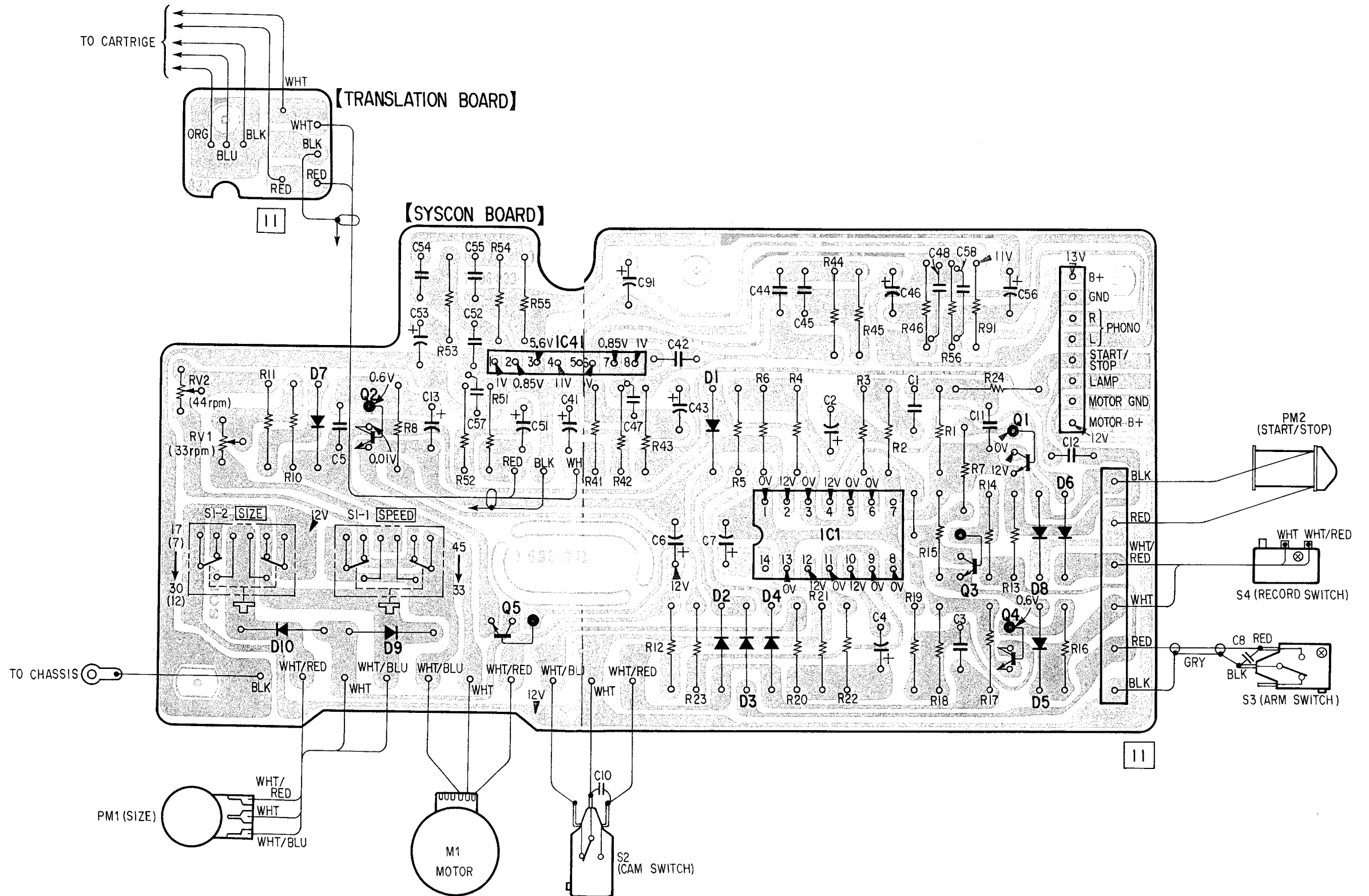
(Top view)

Note:

- Color code of sleeving over the end of the jacket.



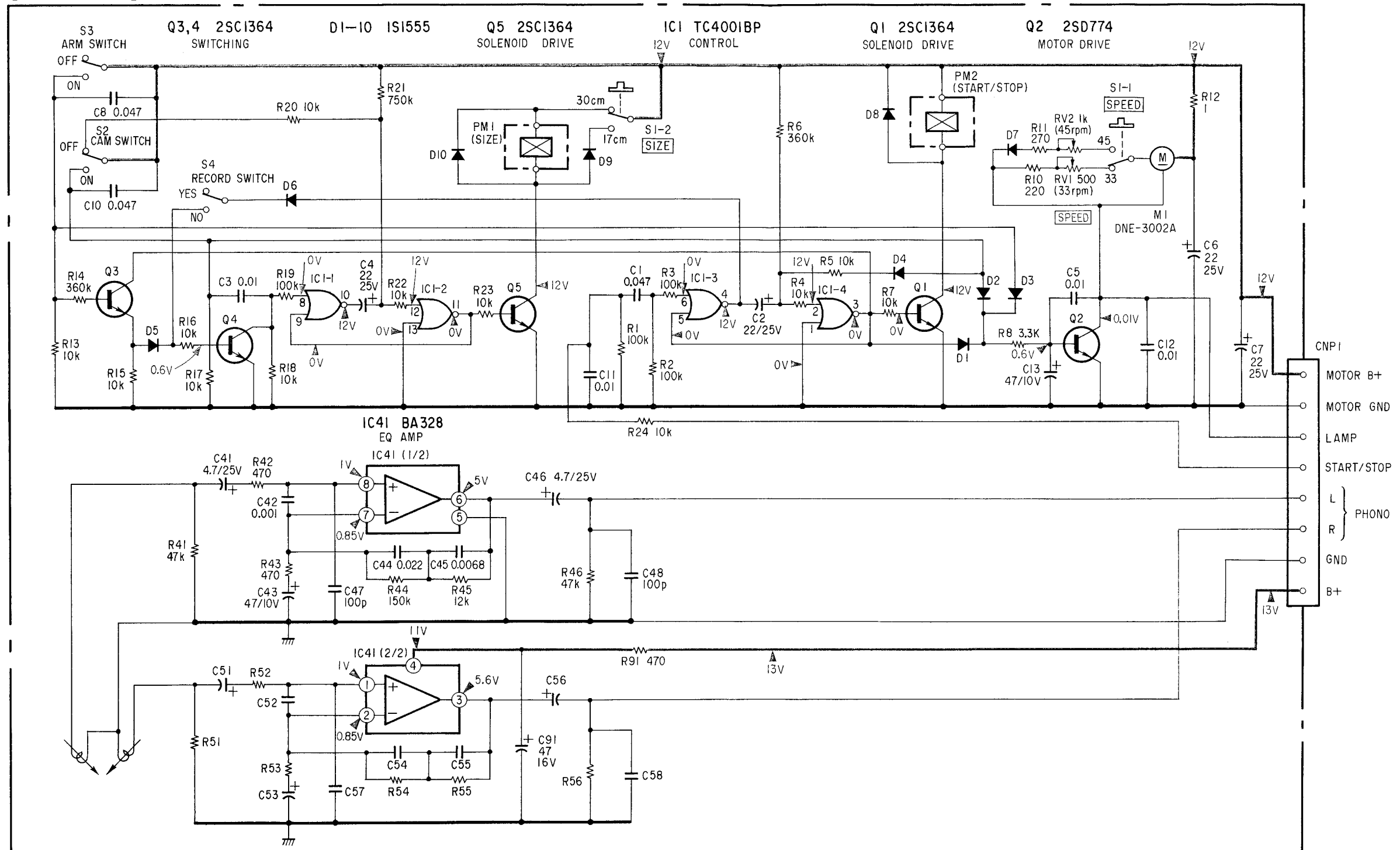
- : B+ pattern



Q IC	2		IC41		IC1		3		4		1									
D	7		9		10		1		2		3		4		5		6		8	

3-2. SCHEMATIC DIAGRAM

【SYSCON BOARD】



• Switch

Ref. No.	Switch	Position
S1-1	SPEED	33 rpm
S1-2	SIZE	30 cm
S2	CAM SWITCH	OFF
S3	ARM SWITCH	OFF
S4	RECORD SWITCH	YES

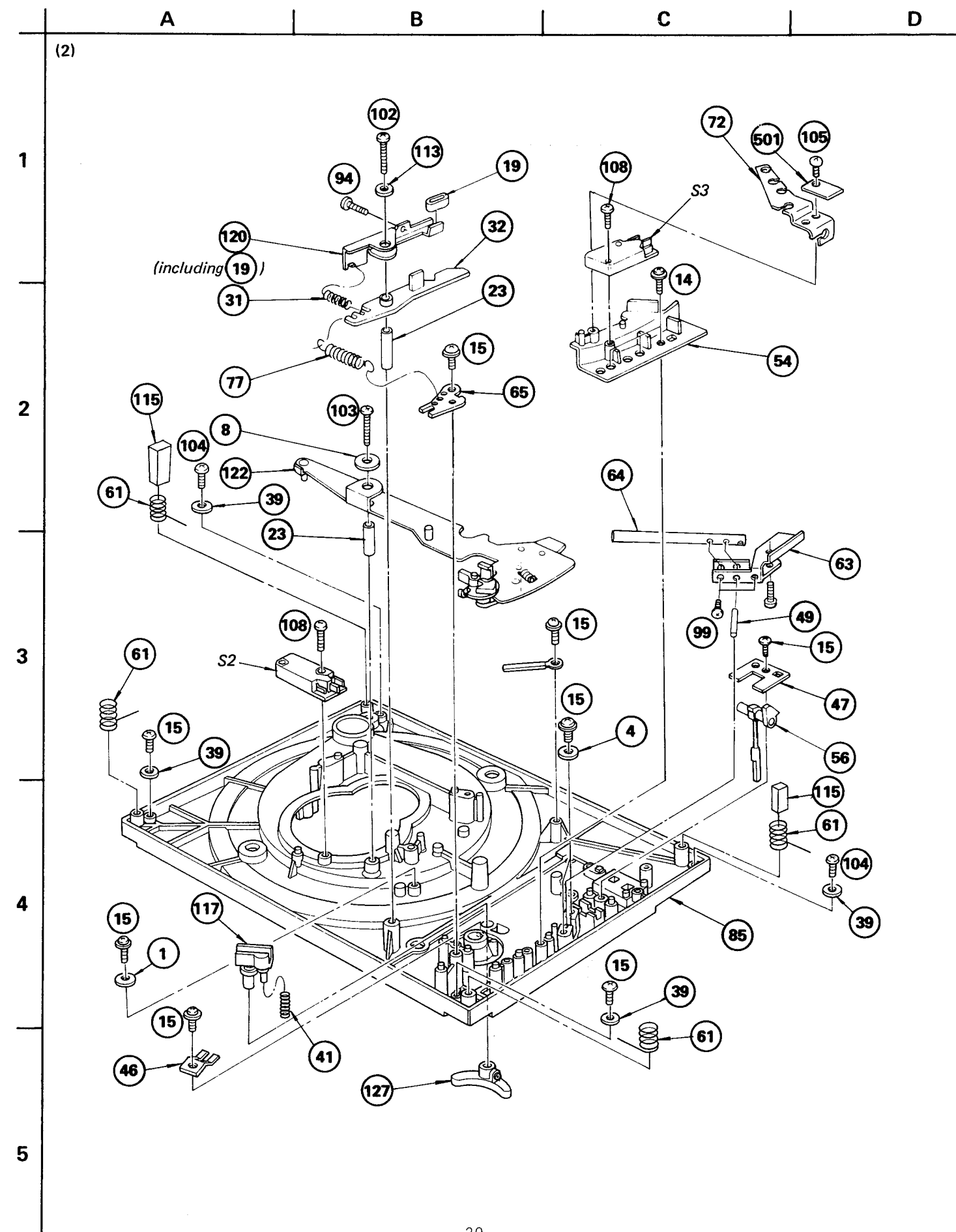
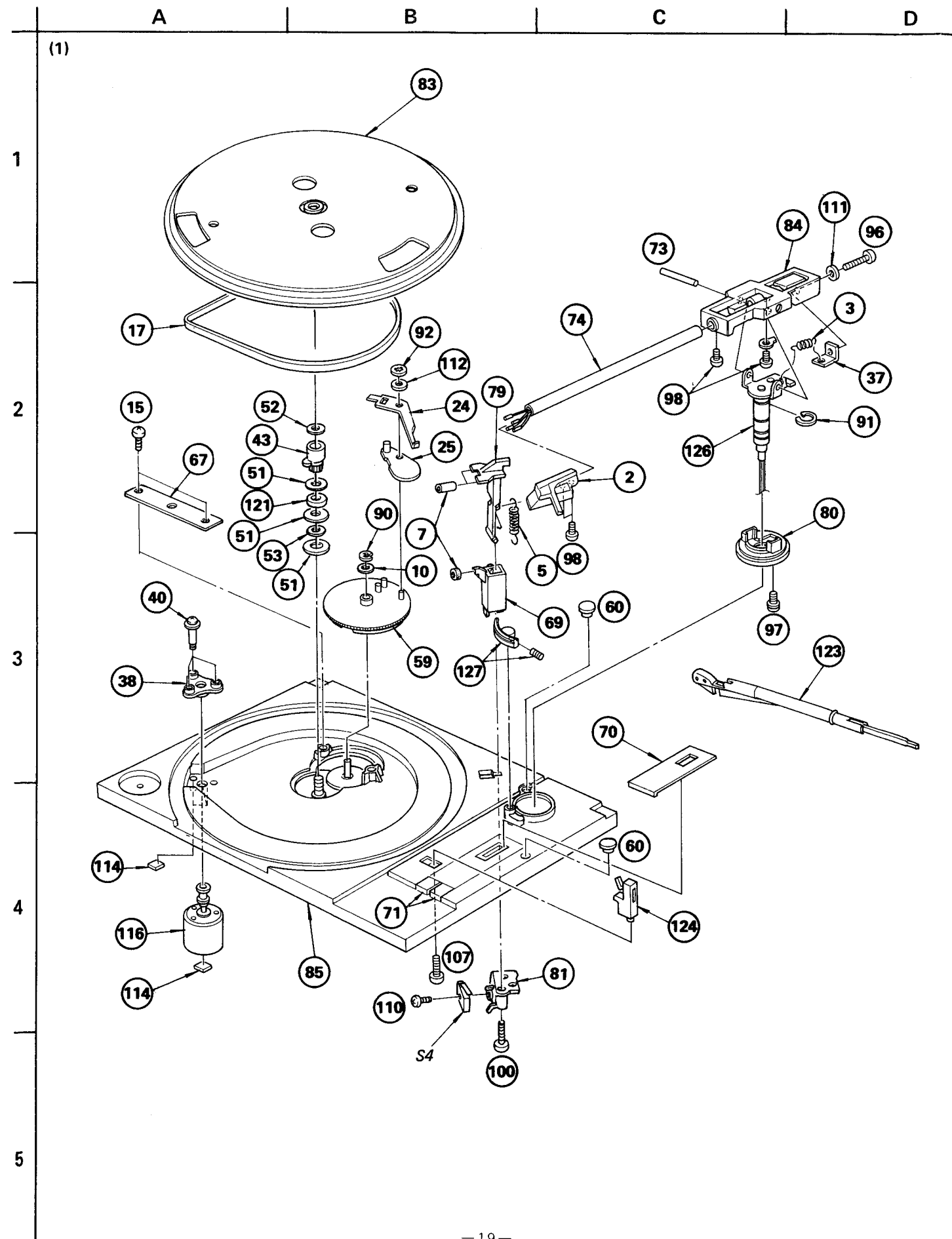
Note:

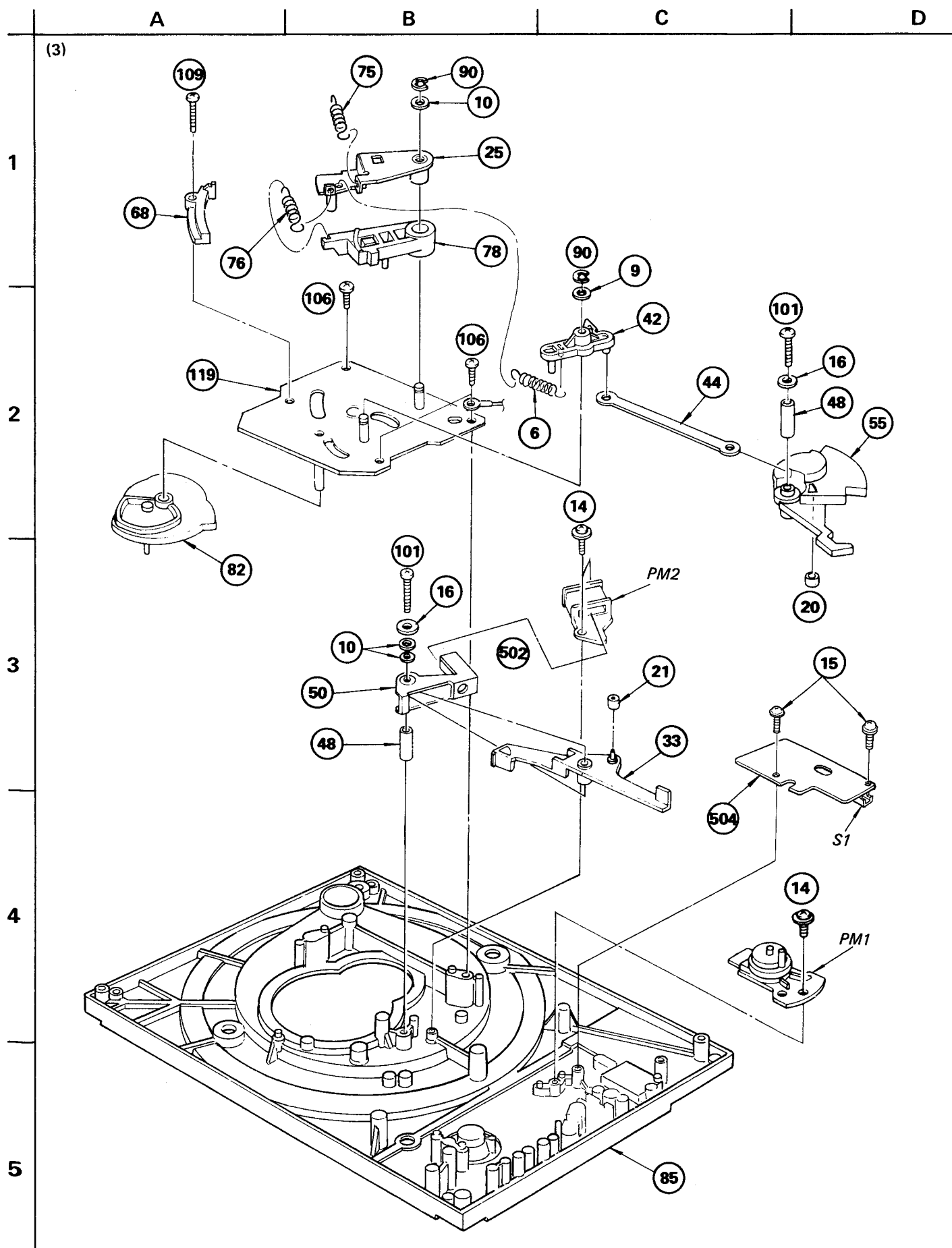
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{4}\text{W}$ unless otherwise noted. $\text{k}\Omega$: 1000 Ω , $\text{M}\Omega$: 1000 $\text{k}\Omega$
- : panel designation.
- : adjustment for repair.
- : B+ bus.

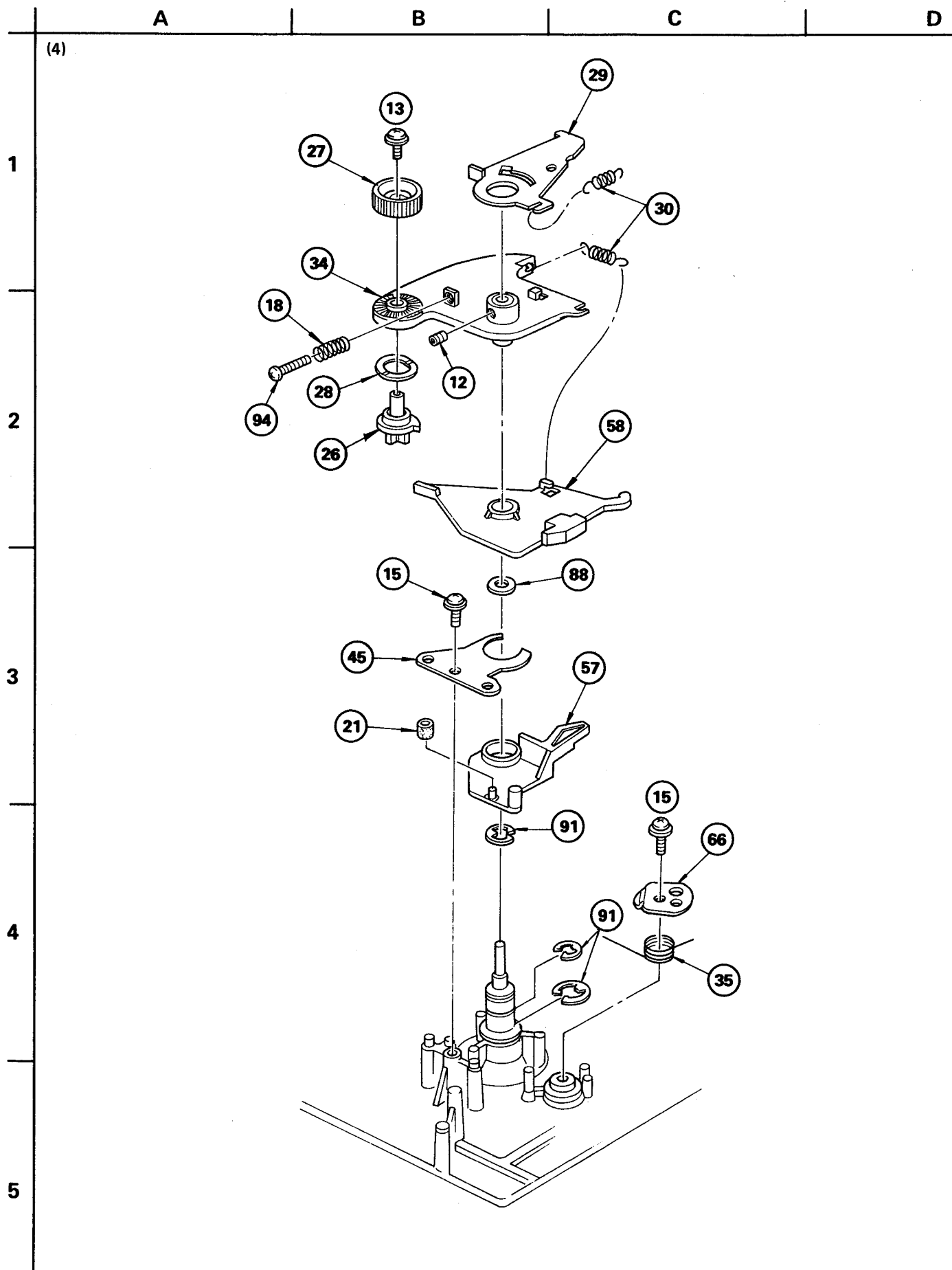
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 $\text{k}\Omega/\text{V}$). no mark: 33 rpm
- Voltage variations may be noted due to normal production tolerances.

SECTION 4

EXPLODED VIEWS AND PARTS LIST







GENERAL SECTION

No.	Part No.	Description
1	0-056-028-00	WASHER, 14
2	1-549-103-00	CARTRIDGE (WITH SHELL) VL-38GSA
3	3-465-159-XX	SPRING, TENSION
4	4-301-647-00	WASHER
5	3-531-869-XX	SPRING, TENSION
6	3-533-064-00	SPRING, TENSION (LEVER S)
7	3-537-790-11	SUPPORT, TENSION ARM
8	3-610-931-11	SPACER, SHAFT, DRUM, HEAD
9	3-701-443-21	WASHER, 5
10	3-701-443-21	WASHER, 5
11	3-701-505-00	SET SCREW, DOUBLE POINT 3X3
12	3-701-509-00	SET SCREW, DOUBLE CUP 3X8
13	3-703-135-00	SCREW, TAPPING
14	3-703-136-00	SCREW, TAPPING
15	3-703-137-00	SCREW, TAPPING
16	4-812-554-00	WASHER
17	4-827-489-XX	BELT
18	4-836-836-00	SPRING, COMPRESSION
19	4-847-046-00	PAD, BRAKE
20	4-852-841-00	TUBE
21	4-852-843-00	ABSORBENT TUBE
22	.....	
23	4-861-929-00	SLEEVE (M)
24	4-861-973-00	CLUTCH (D)
25	4-861-974-00	CLUTCH (E)
26	4-861-975-00	CAM, ADJUSTMENT
27	4-861-976-00	RING, ADJUSTMENT
28	4-861-977-00	WASHER, WAVE
29	4-861-978-00	LEVER, ARM
30	4-861-979-00	SPRING, TENSION
31	4-861-991-00	SPRING, COMPRESSION
32	4-861-996-00	LEVER, RESET
33	4-862-002-00	LEVER, CLUTCH
34	4-862-012-00	DRUM, BRAKE
35	4-862-026-00	SPRING
36	.....	
37	4-868-016-00	HOOK, SPRING
38	4-868-026-00	RUBBER, VIBRATION PROOF
39	4-868-040-00	WASHER
40	4-868-048-00	SCREW, WH, SPACER
41	4-870-904-00	SPRING, COMPRESSION
42	4-870-914-00	LEVER (S)
43	4-870-916-00	TURNTABLE, SUB
44	4-870-918-00	PLATE, LINK
45	4-870-919-00	RETAINER, LEVER, SIZE RESET

NOTE:
• Items with no part number and no description are not stocked because they are seldom required for routine service.
• Items marked " • " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
• Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
• All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
MF:μF, PF:μμF.
RESISTORS
• All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
• F : nonflammable
COILS
• MMH : mH, UH : μH

GENERAL SECTION

No.	Part No.	Description
46	4-870-920-00	RETAINER, PUSH ROD
47	4-870-923-00	RETAINER, LIFTER
48	4-870-925-00	SLEEVE (C)
49	4-870-926-00	SHAFT, LIFTER LEVER
50	4-870-938-00	LEVER, START
51	4-870-943-00	WASHER, THRUST
52	4-870-945-00	RING (P9), O
53	4-870-946-00	RING (P11), O
54	4-870-955-00	BASE, GUIDE
55	4-870-956-00	CAM, SIZE
56	4-870-957-00	CAM, LIFTER
57	4-870-961-00	LEVER, SIZE RESET
58	4-870-962-00	LEVER, LEAD-IN
59	4-870-970-00	GEAR, DRIVE
60	4-874-260-01	CAP, BLIND
61	4-880-506-00	SPRING, COMPRESSION (INSULATOR)
62	.....	
63	4-880-602-00	LEVER, LIFTER
64	4-880-603-00	PIPE, LIFTER
65	4-880-607-00	SUPPORT (L), RESET
66	4-880-608-00	PLATE, IFC
67	4-880-609-00	SUPPORT (N), FITTING, GEAR
68	4-880-611-00	BASE, SLIDE
69	4-880-615-00	BASE, STATION
70	4-880-616-00	PANEL, SURFACE
71	4-880-617-00	KNOB (SS)
72	4-880-618-00	GUIDE, LEAD WIRE
73	4-880-619-00	PIN, HORIZONTAL
74	4-880-623-00	PIPE, ARM
75	4-880-624-00	SPRING, TENSION
76	4-880-625-00	SPRING, TENSION
77	4-880-626-00	SPRING (RESET), TENSION
78	4-880-628-00	LEVER (A), FUNCTION, SPEAKER
79	4-880-629-00	RETAINER, RECORD
80	4-880-631-00	JOINT, CENTER
81	4-880-632-00	BASE, SWITCH
82	4-880-633-00	DRUM, DUAL
83	4-880-634-00	TURNTABLE
84	4-880-635-00	JOINT, PIPE
85	4-880-636-00	FRAME
86	.....	
87	.....	
88	7-623-112-19	W 5, MIDDLE
89	7-623-505-01	LUG, 2
90	7-624-108-04	STOP RING 4.0, TYPE -E

SEMICONDUCTORS
In each case, U : μ, for example:
UA.... : μA..., UPA.... : μPA..., UPC.... : μPC,
UPD.... : μPD...

GENERAL SECTION

No.	Part No.	Description
91	7-624-133-74	STOP RING 12, TYPE-CE
92	7-624-190-81	STOP RING 2, TYPE-CS
93	7-671-151-01	STAINLESS, BALL 1/16INCH
94	7-682-152-01	SCREW +P 3X16
95	.....	
96	7-682-555-04	SCREW +B 3X30
97	7-682-647-01	SCREW +PS 3X6
98	7-685-103-64	SCREW +P 2X5 TYPE4
99	7-685-106-61	SCREW +P 2X10 TYPE4
100	7-685-152-11	SCREW +P 3X25 TYPE2 NON-SLIT
101	7-685-154-21	SCREW +P 3X35 TYPE2 SLIT
102	7-685-166-21	SCREW +P 4X30 TYPE2 SLIT
103	7-685-167-21	SCREW +P 4X35 TYPE2 SLIT
104	7-685-646-21	SCREW +BVTP 3X8 TYPE2 SLIT
105	7-685-647-11	SCREW +BVTP 3X10 TYPE2 N-S
106	7-685-648-21	SCREW +BVTP 3X12 TYPE2 SLIT
107	7-685-650-11	SCREW +BVTP 3X16 TYPE2 N-S
108	7-685-651-21	SCREW +BVTP 3X20 TYPE1
109	7-685-754-01	SCREW +PTT 3X12 (S)
110	7-685-786-01	SCREW +PTT 2X12 (S)
111	7-688-003-01	W 3, SMALL
112	7-688-003-11	W 3, MIDDLE
113	7-688-004-11	W 4, MIDDLE
114	9-911-815-02	STOPPER (D)
115	9-911-815-03	CUSHION
116	A-4608-151-A	MOTOR ASSY
117	A-4637-056-A	ROD ASSY, PUSH
119	.....	
120	X-4861-907-0	LEVER ASSY, BRAKE
121	X-4870-905-0	RETAINER ASSY
122	4-870-907-0	LEVER ASSY, MAIN
123	X-4870-909-1	SPINDLE ASSY, AUTO
124	X-4874-212-4	REST ASSY, ARM
125	4-880-601-0	LEVER (B) ASSY, FUNCTION, SP
126	X-4880-603-0	SHAFT ASSY, ROTARY
127	X-4880-604-0	LIFTER ASSY

NOTE:
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• Items marked " • " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
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• F : nonflammable
COILS
• MMH : mH, UH : μH

ELECTRICAL SECTION

Ref.No.	Part No.	Description
501	1-606-834-00	PC BOARD, RELAY
502	1-452-166-00	MAGNET
503	.....	
504	4-4644-104-A	MOUNTED PCB, SYSTEM CONTROL
CNP1	1-560-639-00	PIN, CONNECTOR 8P
D1	8-719-815-55	DIODE 1S1555
D2	8-719-815-55	DIODE 1S1555
D3	8-719-815-55	DIODE 1S1555
D4	8-719-815-55	DIODE 1S1555
D5	8-719-815-55	DIODE 1S1555
D6	8-719-815-55	DIODE 1S1555
D7	8-719-815-55	DIODE 1S1555
D8	8-719-815-55	DIODE 1S1555
D9	8-719-815-55	DIODE 1S1555
D10	8-719-815-55	DIODE 1S1555
IC1	8-759-240-01	IC TC4001BP
IC41	8-759-932-80	IC BA328
P1	1-508-803-13	U TYPE BASE POST
P2	1-508-807-00	U TYPE BASE POST 10P
PM1	1-454-258-00	PLUNGER, ROTARY
PM2	1-454-202-00	SOLENOIDE, PLUNGER
Q1	8-729-663-47	TRANSISTOR 2SC1364
Q2	8-729-177-43	TRANSISTOR 2SD774
Q3	8-729-663-47	TRANSISTOR 2SC1364
Q4	8-729-663-47	TRANSISTOR 2SC1364
Q5	8-729-663-47	TRANSISTOR 2SC1364
RV1	1-226-427-00	RES, ADJ, CARBON 500
RV2	1-226-428-00	RES, ADJ, CARBON 1K
S1	1-553-998-00	SWITCH, PUSH
S2	1-552-103-00	SWITCH, MICRO
S4	1-552-378-00	SWITCH
S3	1-552-103-00	SWITCH, MICRO

SEMICONDUCTORS
In each case, U : μ, for example:
UA.... : μA..., UPA.... : μPA..., UPC.... : μPC,
UPD.... : μPD...

ELECTROLYTIC CAPACITORS

RATING → : Use the high voltage rated one.						
CAP. (μF)	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.	50 VOLT. PART No.
0.47						1-121-726-00
1.0						1-121-391-00
2.2						1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	—	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	—
3300	1-121-661-00	1-123-075-00	1-123-071-00	—	—	—

CAP. (μF)	100 VOLT. PART No.	160 VOLT. PART No.	250 VOLT. PART No.	350 VOLT. PART No.
0.47	—	—	—	—
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	—	1-123-028-00
3.3	1-121-995-00	—	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	—	—
47	1-123-251-00	1-121-919-00	—	—
100	1-123-084-00	—	—	—

CERAMIC CAPACITORS

RATING							
CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

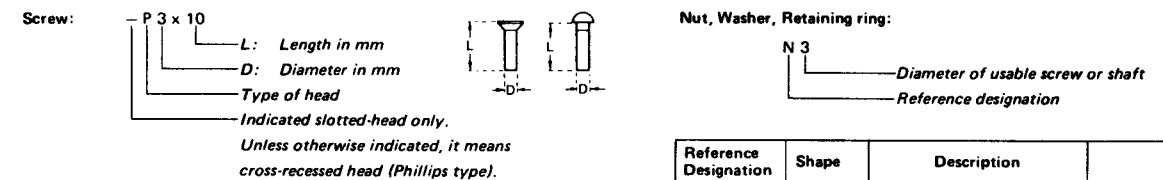
CERAMIC (SEMICONDUCTOR) CAPACITORS

RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015	→	1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018	→	1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022	→	1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00		
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00		
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00		
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00		
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00		
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00		
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00		
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00		
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00		
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00		
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00		
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00		
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00		
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00		
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00		
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00		
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00		
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00		
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00				
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00				
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00				
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00				
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00				
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00				

HARDWARE NOMENCLATURE



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	